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ABSTRACT

This handbook provides information to help the policymaker or educator understand the research process in order to study problems and opportunities associated with the education of girls in Africa. In Africa, girls account for only 57% of the school-age population. They are more likely to drop out of school and to score lower on the examinations that determine their enrollment at postprimary levels. Research into the education of girls has the potential to improve their opportunities, and to raise the educational level of society in African countries. The purpose of research is outlined, and steps in planning a research project are defined. The discussion of the planning phase includes a discussion of sampling and sample size selection. Part III of this manual reviews the basic tools of the social science researcher. Literature reviews, techniques such as surveys and interviews, and qualitative research are described. A final section considers working with research findings and using the results. Appendixes present a sample research outline, an example data grid, and a list of some research instruments commonly used in the study of education of girls. Suggested readings are listed with each chapter. (Contains 36 figures, 50 tables, 33 illustrative boxes, and 104 references.) (SLD)

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Seeing for Yourself

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EDI LEARNING RESOURCES SERIES

Seeing for Yourself

Research Handbook for Girls' Education in Africa

Eileen Kane

The World Bank
Washington, D. C.

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Eileen Kane is head of the Department of Anthropology at St. Patrick's College, Maynooth, Ireland.

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Foreword

James Wolfensohn, the new president of the World Bank, has said:

> Women are absolutely central to sustainable development, economic advancement, and social justice.... Increased emphasis on girls' education [is] the most important contribution the Bank can make to the strengthening of women's role in development.

As part of its ongoing contribution to enhancing girls' educational opportunities, the Economic Development Institute has held seminars for policymakers, developed videos and training manuals for educators, and created targeted handouts for opinion formers. *Seeing for Yourself: Research Handbook for Girls' Education in Africa* reflects a new dimension in the Bank's efforts to create effective strategies for girls' education. It recognizes the need to reach deeper into the community and to draw upon local participation to help produce reliable, timely, and culturally sensitive information on issues and priorities. But in many developing countries, research capacity is limited. This handbook is designed for people who do not have professional training in research, but who understand the issues and have important local knowledge. It provides a "how to" for school-level personnel, concerned parents, ministry officials, nongovernmental organizations active in education, and others who want to join as partners in helping to reap the economic and social benefits that arise from educating girls.

Vinod Thomas, Director
Economic Development Institute

Preface

Educational systems in most countries have been created for boys—not intentionally, but the effect is the same. They view the student as a person who has time to study because his work at home is not essential to the household; who is not physically, culturally, or spiritually endangered in the school setting; who is not expected to marry early or become pregnant; who functions in an atmosphere of intellectual respect for his abilities; who has appropriate textbooks that reflect his concerns in life; who is taught by people like himself who can act as role models; and whose parents see the relationship between education and advantages in later life. That student is a boy. The resources have gone into his education. Our problem is to bring educational systems to the point where they also address the needs of the other 50 percent of the potential school clientele.

The introduction to this handbook shows the many economic advantages that a nation can harvest by educating its girls. But as I was writing it was the human side, not the economic, that moved me most. I kept a picture in my mind of two bright little girls, born 100 years apart, one in 1885 and one in 1985. Both had to leave school at nine. The first became my grandmother. "I was going to be a teacher," she said. She spent her life as a servant.

The second lives in The Gambia, and her parents have removed her from school in order to send her brother. She was looking in the school window when I saw her. "I was going to be a teacher," she said. She thinks she will spend her life as a servant.

It's in our power to do something about the second little girl. This handbook tries to show you how to find her and to work out how to help her.

Acknowledgments

This handbook was written during a six-month period that I spent as Visiting Irish Professor at the Economic Development Institute of the World Bank, Human Resources Division (EDIHR). The professorship was funded by the Irish government. Time constraints meant that the help of a number of people was not only welcome, but essential. I would like to thank Paud Murphy, EDIHR, who commissioned the work; Armand Van Nimmen, division chief, EDIHR, who supervised it; and the many people who provided invaluable comments. Among these, first and foremost, were the reviewers, Robert Chambers, Institute of Development Studies, University of Sussex, and James Hoxeng, U.S. Agency for International Development, whose suggestions led to important revisions, as did those of World Bank staff members Carlos Rojas and Maggie Kilo. Adhiambo Odaga was enormously generous with her time and considerable knowledge of girls' education in Africa. Elizabeth King kindly provided data for the scattergram in chapter 17. Veena Bhaskar and Hanna Sarkees provided administrative support. The staff of the World Bank Sectoral Library was, as always, cheerful and efficient in helping with materials: Chris Windheuser, Eliza McLeod, Olga Boemeke, Alcione Amos, and Sophie Hoolboom all helped.

I would particularly like to thank Professor Richard Scaglion of the Department of Anthropology, University of Pittsburgh, for enabling me to meet the publication deadline by stepping in and preparing chapter 17.

Edith Ortanez processed multiple drafts of the handbook and prepared many of the drawings. The cartoons in chapter 14 were on the spot sketches drawn by researcher Mary O'Reilly de Brun in a project in The Gambia, and, in keeping with the spirit of the book, the "game" in chapter 16 is the work of a twelve-year-old schoolgirl, Deirdre Murphy. John Didier oversaw production, and Alice Dowsett's careful editing put law and order, as well as various felicitous touches, on the final version. Desktop publishing was done by Alex McLellan and proofreading by Kathy Rettinger.

The publication of this work coincides with Armand Van Nimmen's retirement from the World Bank after thirty years of service. I extend the traditional Belgian *embrassade* to him, along with heartfelt appreciation for his guidance and support.

Part I

Before We Begin

1

Introduction

If we could fit all of human history into one hour, the second half of the twentieth century would take up a tiny fraction of one second. More than 5 billion of us are sharing the earth in this tiny window of eternity; 800 million of us are going hungry, 100 million are homeless, and 14 million of our young children die each year. For many of us our minds are as parched as our bodies: nearly a billion of us cannot read and write and 300 million of our school-aged children are not in school. Two-thirds of those who cannot read and write are women; 60 percent of children not in school are girls (World Bank 1990).

Governments, national and international agencies, nongovernmental organizations, and local communities have all focused their attention, in various ways, on these problems, with some success. In the last fifty years average life expectancy in the developing countries as a whole has increased by almost half; under-five mortalities have fallen by a third (UNICEF 1989); the lives of 2.5 million children are saved annually by immunization and oral rehydration therapy; the percentage of people able to read and write has almost doubled (UNICEF 1991); and in most places, food production has outpaced population growth in the past twenty-five years (FAO 1985). In the last decade, advances have been even more dramatic: more than 3 million children who would otherwise have been paralyzed by polio are living normal lives because of increases in immunization, infant deaths from neonatal tetanus have been cut by half, and experts foresee an end to mental retardation and blindness caused by nutritional deficiencies (UNICEF 1994). Nevertheless, many problems are stubbornly persistent. In Sub-Saharan Africa, for example, population growth rates are high and food production and life expectancy lag behind other areas.

In relation to education, many countries still do not provide primary education for all children. Numerous students repeat grades, thereby occupying scarce places; many of those lucky enough to enroll in primary school drop out before completing it; and the level of achievement students attain is often low. These problems affect girls more than boys. In Africa, for example, girls' primary school enrollment accounts for only 57 percent of the school-age population, compared with 75 percent for boys (UNICEF 1991). On average, girls in Africa are more likely than boys to drop out of primary school and to score lower on examinations, which in turn limits their enrollment at the postprimary levels.

The purpose of this handbook is to help you, as a policymaker, planner, administrator, teacher, or member of a group or association in Sub-Saharan Africa, to understand the research process and to study problems and opportunities associated with girls' education in Africa. This will help you to take girls' education into account when needs are being assessed, policy is being made, and projects are being planned and evaluated.

Why study girls' education? What about boys? Why Africa? What research is needed? Can you do it?

GIRLS' EDUCATION

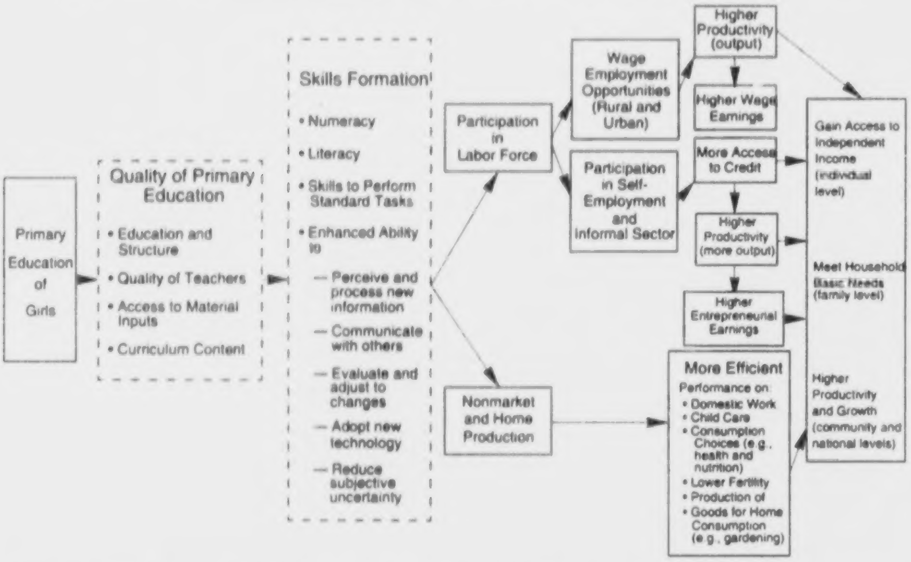
This handbook emphasizes girls' education for two reasons. The first reason is the greater advantages arising from girls' education. From a national point of view, the evidence is now strong enough to support the conclusion that investing in educating females is probably the single most cost-effective investment to improve standards of living in developing countries, particularly among the poorest populations. We also know that this investment will not slow economic growth (Schultz 1989). Primary education provides a foundation for helping to alleviate poverty and improve social and economic development.

The litany of advantages to developing countries of increased participation of girls in primary school is well documented (see, for example, Benavot 1989; Floro and Wolf 1990; Hert and others 1991; King and Hill 1993; Psacharopoulos 1989; Subbarao and Raney 1992; Tietjen 1991). Some economic benefits include

- Faster growth of gross national product (GNP)
- Higher rates of return on girls' versus boys' education
- Higher family incomes
- Improved participation in wage employment and in home and nonmarket production
- Higher productivity, a more skilled labor force, better employment opportunities, greater occupational mobility, and improved earnings
- The possibility of improved participation in the more capital-intensive areas of self-employment and areas of the informal sector that require literacy and numeracy.

Figure 1-1 shows the interrelationships among these benefits.

Figure 1-1. The Multidimensional Economic Impact of Girls' Primary Education


Primary Education of Girls
Quality of Primary Education
• Education and Structure
• Quality of Teachers
• Access to Material Inputs
• Curriculum Content
Skills Formation
• Numeracy
• Literacy
• Skills to Perform Standard Tasks
• Enhanced Ability to
— Perceive and process new information
— Communicate with others
— Evaluate and adjust to changes
— Adopt new technology
— Reduce subjective uncertainty
Participation in Labor Force
Nonmarket and Home Production
Wage Employment Opportunities (Rural and Urban)
Participation in Self-Employment and Informal Sector
Higher Productivity (output)
Higher Wage Earnings
More Access to Credit
Higher Productivity (more output)
Higher Entrepreneurial Earnings
More Efficient
Performance on:
• Domestic Work
• Child Care
• Consumption Choices (e.g., health and nutrition)
• Lower Fertility
• Production of
• Goods for Home Consumption (e.g., gardening)
Gain Access to Independent Income (individual level)
Meet Household Basic Needs (family level)
Higher Productivity and Growth (community and national levels)

Source: Floro and Wolf (1990, p. 17). Reprinted with permission from Creative Associates International.

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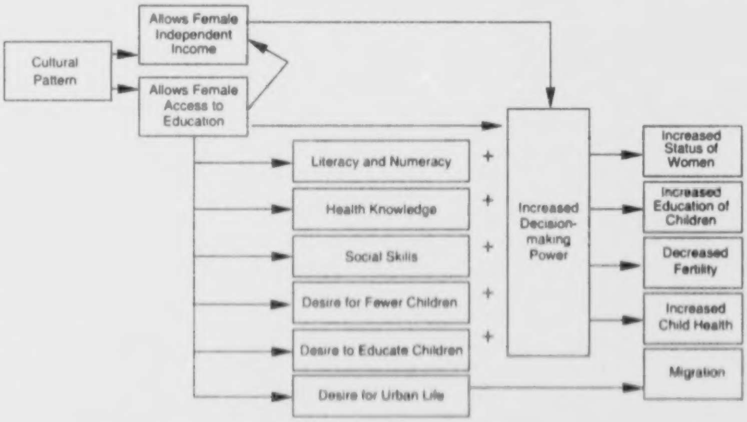
Even more interesting is that the gender gap itself matters. Other things being equal (capital stock, labor force), countries with a larger gender gap in education will have lower economic production, and in countries with similar per capita incomes and patterns of expenditure, those with smaller gender gaps in education will have better indicators of social welfare (King 1990, p. 6; King and Hill 1993, pp. 14–21).

Some social benefits arising from increased education of girls include

- Lower fertility rates
- Lower infant mortality rates
- Improved nutrition
- Increased life expectancy
- Better opportunities for their children in the next generation.

Figure 1-2 illustrates these relationships.

Figure 1-2. Interrelationships among Girls' Primary Education, Culture, and Social Change


Cultural Pattern
Allows Female Independent Income
Allows Female Access to Education
Literacy and Numeracy
Health Knowledge
Social Skills
Desire for Fewer Children
Desire to Educate Children
Desire for Urban Life
+
+
+
+
+
Increased Decision-making Power
Increased Status of Women
Increased Education of Children
Decreased Fertility
Increased Child Health
Migration

Source: Floro and Wolf (1990, p. 30). Reprinted with permission from Creative Associates International.

Increased female education is not only associated with these benefits—sometimes it is the single most effective way to achieve them. For example, research in seventy-two developing countries shows that doubling the number of girls at the secondary level in 1975 would have lowered fertility and reduced the number of infant deaths by a greater amount than doubling the scores for family planning services, and that doubling the number of girls in secondary school would have reduced infant mortality more than cutting the ratio of population to doctors by half or than doubling GDP per capita from US$650 to US$1,300 (Subbarao and Raney 1992, pp. i–ii).[1]

The second reason for emphasizing girls' education is the weak base from which girls' education is developing. While most governments claim to be enthusiastic about increasing girls' participation in education, they have done little to see that it actually comes about. Indeed, despite sensitization programs, seminars, policy statements, and so on, many of the good intentions to improve girls' education remain at the theoretical rather than the implementation phase.

---

[1] The scores reflect "the availability and strength of service-related family planning programs in developing countries (Subbarao and Raney 1992, p. 9).

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No one is arguing that girls' education should be developed at the expense of boys' education. Indeed, all the research shows that improving educational opportunities for girls generally enhances the life of people in the community, boys included.

WHY AFRICA?

In the past three decades, the nations of Sub-Saharan Africa have made considerable gains in educating their children. The number of girls in primary school rose from 51 to every 100 boys in 1960 to 76 to every 100 boys in 1990, and the number of girls in secondary school rose from 51 to every 100 boys in 1960 to 67 to every 100 boys in 1990. In many ways, however, Sub-Saharan Africa has more to gain by increased enrollment of girls than any other region of the world. In 1986 it had the lowest female gross enrollment ratios (enrollment of students of all ages as a percentage of the population of official school age), in 1985 it had the lowest absolute rate of female persistence to Grade 4 (the percentage of children starting primary school in 1985 who continued to Grade 4 by 1988), and in 1990 it had the second lowest rates of female literacy in the world. On average, in 1990 Sub-Saharan African women had less schooling than women in any other region of the world. (For none of these indicators, however, does Sub-Saharan Africa have the largest gender gap—the discrepancy between the figures for males and females [Hartnett and Heneveld 1993, pp. 7-10]—although six African countries fall in the top ten countries with the largest gender gap in first-level education [UNICEF 1991]). Table 1-1 shows figures for these problems in a number of African countries.

WHY DO RESEARCH?

All developing countries are at the initial phases of analyzing their situation and developing programs that address the problems of improving girls' education. From an operational perspective, the effectiveness of these programs will depend on the commitment of the government, education staff, and parents; on good coordination among donors; and on the relevance and quality of information from which the programs are developed. We need to know more, for example, about the areas addressed in the following sections.

We Need to Know More about the Impacts of Girls' Education

In the economic sphere we know little about how education affects women's home production of goods and services, partly because statistical data are lacking, partly because those figures that do exist are not grouped by gender, and partly because some effects are not readily quantifiable.

Important areas of social information are also missing: most social benefits that have been studied so far relate to women's roles as homemakers and mothers. The benefits to women themselves and to the performance of their other roles in society have received less attention, again partly because these are not easily quantifiable, but also because until recently they may have been seen as less important. You may want to look at these and other impacts of girls' (and women's) education. Some experts have identified the following areas as those where research on the impact of education is required (Floro and Wolf 1990, pp. 76–77):

- The differences that the structure and content of schooling makes to women's social roles, their economic activities, and the impact that women have on society.
- The impact of women's education
  - In rural areas
  - On women of different socioeconomic classes
  - On women's access to credit, both formal and informal
  - On women's capacity to engage more widely in economic and social activities
  - On girls' social skills, self-confidence, and sense of efficiency

— On the rate of return from women's nonmarket or nonmonetary activities
— On the status of women.

Table 1-1. Girls and Women: The State of Deprivation in Africa

Country	Life expectancy: females as a percentage of males 1992	Adult literacy rate: females as a percentage of males 1990	Enrollment ratios: females as a percentage of males 1986–91 Primary-school	Enrollment ratio: females as a percentage of males 1986–91 Secondary-school	Contraceptive prevalence (%) 1980-93	Pregnant women immunized against tetanus, 1990–92	Percentage of births attended by trained health personnel 1983–92	Maternal mortality rate 1980–91
Niger	107	43	57	44	4	45	15	700
Angola	107	52	93	—	1 x	8	15	—
Mozambique	107	47	71	56	4	32	25	300
Sierra Leone	108	35	70	57	4	80	25	450
Guinea-Bissau	108	48	55	44	1 x	35	27	700 x
Guinea	102	37	48	33	1 x	70	25	800
Malawi	103	—	83	50	13	66	55	400
Rwanda	107	58	99	67	21	88	29	210
Mali	107	59	57	44	5	8	32	2,000
Liberia	105	58	55 x	39 x	6	20	58	—
Somalia	107	39	50 x	58 x	1	5 x	2	1,100
Chad	107	43	44	25	1 x	5	15	960
Eritrea	—	—	—	—	—	—	—	—
Ethiopia	107	48 x	65	71	2	7	14	560 x
Mauritania	107	45	70	45	4	40	40	—
Zambia	103	80	92	56	15	20	51	150
Nigeria	107	65	77	77	6	25	37	800
Zaire	106	73	75	50	1 x	29 x	—	800
Uganda	105	56	83	50	5	16	38	300
Burundi	107	66	81	67	9	56	19	—
Central African Republic	110	48	61	35	—	87	66	600
Tanzania	106	—	98	80	10	15	53	340 x
Ghana	107	73	82	65	13	9	40	1,000
Madagascar	106	83	96	90	17	2	58	570
Sudan	105	28	71 x	74 x	9	14	69	550
Gabon	106	66	—	—	—	86	80	190
Lesotho	109	—	116	148	5 x	40	40	—
Burkina Faso	107	32	62	56	8	26	42	810
Benin	107	50	51	38	9	83	45	160
Senegal	104	48	73	52	11	26	41	600
Togo	107	55	63	30	34	81	54	420
Côte d'Ivoire	106	60	70	44	3	35	50	—
Cameroon	106	64	86	68	13	7	64	430
Congo	110	63	—	38 x	—	60	—	900
Zimbabwe	105	81	98	85	43	60	70	—
Namibia	104	—	111	127	26	52	68	370 x
Kenya	107	74	96	70	27	37	50	170 x
South Africa	110	96 x	—	—	48	—	—	84 x
Botswana	110	77	105	107	33	46	78	250
Mauritius	110	89 x	102	100	75	77	85	99

— Not available.

x "Indicates data that refer to years or periods other than those specified in the column heading, differ from the standard definition or refer to only part of a country" (UNICEF 1994, p. 62).

Note: Nations are listed in descending order of their under-five mortality rates.

Source: UNICEF (1994).

We Need to Learn How to Overcome the Obstacles to Girls' Education

The reasons for girls' low enrollment, persistence, and achievement in the region are undoubtedly many and complex, and may differ across and within countries. Research from many developing countries suggests, for example, that the constraints to girls' education are related to

- Delayed rate of return for governments, because the benefits of increased investment in schooling can take many years to become apparent
- Legal restrictions
- Family costs, including opportunity costs
- Sociocultural barriers
- Early marriage
- Teenage pregnancies
- Gender biases in classroom practice and textbooks
- Inaccessibility of schools, which many parents see as a greater obstacle to girls than to boys
- Cultural perceptions of boys' superior abilities
- Poorer performance of girls on examinations
- Lack of employment opportunities for educated girls (see, for example, Bellew and King 1993; Floro and Wolf 1990; Namuddu 1992).

The evidence also shows that the relative importance of these factors in parents' schooling decisions differs among communities, often along economic, geographic, and ethnic lines. To what extent do these affect the country, region, or community that concerns you, and why?

You may want to look at problems or strengths that have been identified through an examination of statistics for your country or community. For example, Hartnett and Heneveld (1993) have looked at the differences between boys and girls in forty-six countries in terms of **access** to school; **attainment**, or the length of time they remain in school and the level they reach; and **accomplishment**, or their success after leaving school. By looking at these for your own country, you can prepare a country profile that may highlight areas worth investigating, for example, in Tanzania you might want to examine why so few girls complete secondary school, in Mali you might want to see why girls have problems with access to primary education. You might use Hartnett and Heneveld's tables, or following their guidelines, use your own country's national or subnational statistics to identify questions to study.

We Need to Develop Strategies for Improving Girls' Participation

We also have information from developing countries about the success or otherwise of a number of interventions designed to boost girls' enrollment, for example, those for getting girls into school (access), keeping them there (retention), and helping them to achieve (table 1-2). However, very little of this information comes from African countries. In addition, we do not have enough information to be certain what has made the interventions succeed or fail, and we cannot say with any certainty how effective they will be under other conditions or in other places. What should be done, and what we need to know to do it, may vary widely in the country, or even the community, in which yǒu are working. You may want to explore some of these ideas in your research.

Table 1-2. Summary of Strategies that Work

		Factors addressed		Positive impacts		
Strategy	Interventions	Supply	Demand	Access	Retention	Achievement
Locate schools closer to communities	• Bring schools closer to communities • Create culturally appropriate facilities, including provision for separate toilets and water supply • Establish single-sex schools	•	•	•	•	•
Promote hiring of female teachers	• Increase the supply of female teachers • Provide incentives • Provide training locally	•	•	•	•	•
Lower the costs toparents	• Provide scholarships • Provide textbooks and uniforms • Address the opportunity costs of girls' labor	•	•	•	•	•
Develop relevant curricula	• Render the curriculum more relevant • Eliminate math and science gaps • Account for the future now	•	•	•	•	•
Increase community participation	• Support communities that show interest • Solicit support of community leaders • Involve parents in planning, management, decisionmaking, and advocacy • Recruit teachers from the local community		•	•	•	•
Promote localization/ decentralization	• Empower communities with responsibility through local management mechanisms • Formulate indicators to monitor progress • Establish greater links among levels of administration		•	•	•	•
Promote advocacy and social mobilization	• Develop comprehensive strategy • Prepare action plan • Use "third channel" technologies • Allocate sufficient resources for information dissemination		•	•	•	•
Design systems that accommodate the needs of female students	• Prepare diagnostic studies • Design flexible schedules • Provide instruction in discrete units		•	•	•	•
Support multiple delivery systems	• Encourage experimental schools • Establish regional educational resource centers • Establish stronger links between the different systems • Provide incentives to encourage participation in nonformal or nontraditional alternatives	•	•	•	•	•

Note: Third channel technologies are nonprint communications vehicles, including radio and television as well as traditional forms of communication, such as folk theater, village meetings, and festivals.

Source: UNICEF (1992).

CAN YOU DO THE RESEARCH?

You might wonder why you should look into some of these problems, and whether or not you will be able to. Increasingly, in recent years, experts have come to see the value of local expertise and experience as essential in the process of developing appropriate, relevant, and sustainable programs. People who are familiar with a country, a culture, a people are far more likely than international experts to be aware of local problems and opportunities, understand the entire network of cultural and societal norms that shape people's ideas and behavior, ask the right questions, be able to put the answers in context, and assess the meaningfulness and practicality of various strategies for accomplishing what people need and want. One of the ways to capitalize on local expertise is to equip people "on the ground" to do research. Eventually, your research may be added to the contributions made by the researchers mentioned in this chapter.

A second and equally important consideration is that only through the development of national and local social research capacities can sufficient work be carried out to provide us with the broad knowledge base that is needed to address the problems we have been discussing.

A third is that in most African countries, a lack of resources, the scarcity of trained personnel, and the urgency of the problems mean that nonresearchers often find themselves in the position of having to collect information, whether or not they call it research. They have to do this with little preparation or support, and little time to take from an already crowded work schedule.

Finally, there is a larger issue. Historically, decisions about what information was important, who gathered it, and how it was used were determined by the powerful for the less powerful. Elites and people of higher social standing studied the poor, men studied women, the industrial world studied the developing world. Learning how to do basic social research enables people who were traditionally left out of this process to contribute and to bring different perspectives and insights to bear.

THE HANDBOOK

This handbook has been designed for people with little or no training in social research who are concerned about important issues related to girls' education in Africa. You may be a policymaker or an inspector of schools; someone working in a government department, an international agency, or a voluntary organization; you may belong to a community group; or you may be a trainer looking for a text that will help your students to do research.

What you will learn will help you gather data to identify problems and possible interventions, assess resources for action, plan projects, and understand and evaluate the work of other researchers.

The techniques are drawn from a wide variety of disciplines, but the spirit comes from anthropology, sociology, rapid rural appraisal, participatory research, and educational evaluation. The handbook emphasizes

- Understanding the basics of research
- Getting valid, relevant information
- Meeting relatively short time constraints
- Using the principles of optimal ignorance (knowing what is not worth knowing) and proportionate accuracy (recognizing the degree of precision you need) (Chambers 1981, p. 95)
- Recognizing that local people are participants in, not subjects of, the research process.

At the beginning of most chapters, a box tells you what kinds of questions the approach or technique is good for. A published study that used this approach is given as an example. At the end of most chapters we look at how the chapter applies to a group of girls you will meet in chapter 4.

There are many ways of doing research. The techniques and approaches presented in this manual were chosen based on certain assumptions, namely:

- That you have expertise or experience in the field of education, administration, planning, or policy-making, but little or no research background
- That you are particularly concerned with the cultural and human factors that shape people's behavior, beliefs, and attitudes toward girls' education
- That while this understanding of cultural and human factors can provide insights beyond the group you are studying, your main aim is understanding at the local level, and that generally, you will not be using your group as a sample to understand a much larger group
- That you will be working with relatively small numbers of people and will not be attempting regional or national surveys
- That you have time and budget constraints and may have little or no assistance
- That you may not have, or need, access to a computer.

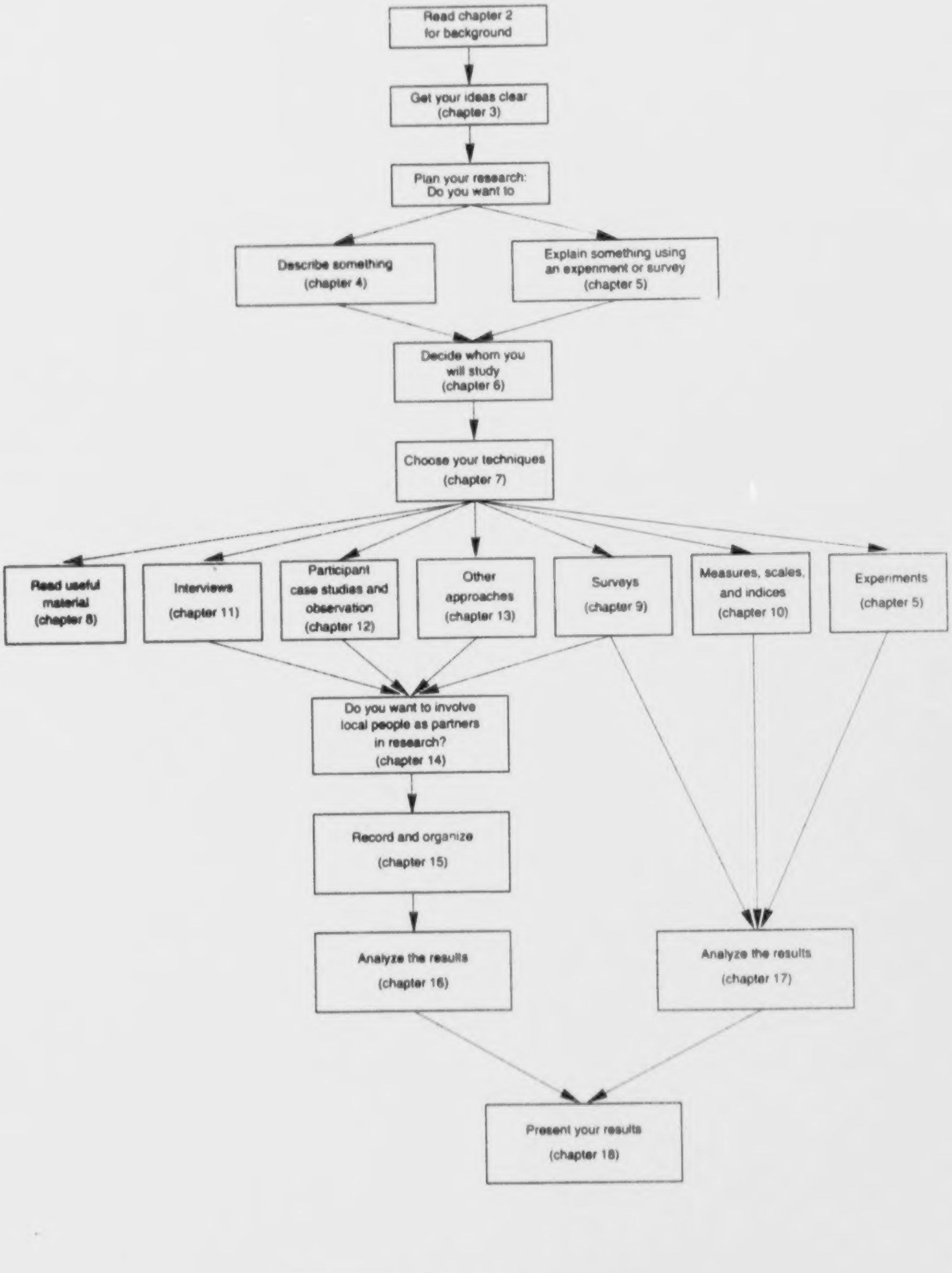
Even if you will never do research, you still have to understand the rationale, value, and limitations of other people's research, or you will forever be the victim of a kind of intellectual neocolonialism, at the whim of people who have power over you because they have a monopoly on skills and jargon.

HOW TO USE THE HANDBOOK

The chapters in the handbook can be read separately, but if you are carrying out a complete research project, as figure 1-3 shows, some chapters go together. Even though you do not need to understand chapter 2 to do research, it will help you to understand that there are different ways of looking at the world, and that these different ways lead to different kinds of research.

Educational research in developing countries is an exciting and rapidly growing field that draws upon good ideas from existing disciplines, cooperation between disciplines, and new developments. It calls for recognition of practical constraints, openness to innovation, and learning from and sharing research experiences, good and bad. You are in an excellent position—you have some practical or policy experience of education, and you are coming into a field that values fresh viewpoints.

Figure 1-3. Overview of the Handbook's Chapters


Read chapter 2 for background
Get your ideas clear (chapter 3)
Plan your research: Do you want to
Describe something (chapter 4)
Explain something using an experiment or survey (chapter 5)
Decide whom you will study (chapter 6)
Choose your techniques (chapter 7)
Read useful material (chapter 8)
Interviews (chapter 11)
Participant case studies and observation (chapter 12)
Other approaches (chapter 13)
Surveys (chapter 9)
Measures, scales, and indices (chapter 10)
Experiments (chapter 5)
Do you want to involve local people as partners in research? (chapter 14)
Record and organize (chapter 15)
Analyze the results (chapter 16)
Analyze the results (chapter 17)
Present your results (chapter 18)

BEST COPY AVAILABLE

FURTHER READINGS TO HELP YOU

In this chapter and the ones that follow, you will see a number of citations in the text, for example, (Bamberger 1994). You can find out more about the work by looking in one of two places: at the end of the chapter, where you will find a section called "Further Readings to Help You," or at the end of the book under "References." The "Further Readings to Help You" sections contain books and articles of general interest, which will take you one step beyond what is presented in the chapters. The "References" section contains the other books and articles that I used to write the book.

Bellew, Rosemary T., and Elizabeth M. King. 1993. "Educating Women: Lessons From Experience." In Elizabeth M. King and M. Anne Hill, eds., *Women's Education in Developing Countries.* Washington, D.C.: World Bank.

Floro, Maria, and Joyce M. Wolf. 1990. *The Economic and Social Impacts of Girls' Primary Education in Developing Countries.* Prepared for the Advancing Basic Education and Literacy (ABEL) Project and the U.S. Agency for International Development (USAID). Washington, D.C.: USAID.

Hartnett, Teresa, and Ward Heneveld. 1993. *Statistical Indicators of Female Participation in Education in Sub-Saharan Africa.* Africa Technical Department, Human Resources Division, Technical Note No. 7. Washington, D.C.: World Bank.

Herz, B., K. Subbarao, M. Habib, and L. Raney. 1991. *Letting Girls Learn: Promising Approaches in Primary and Secondary Education.* Discussion Paper No. 133. Washington, D.C.: World Bank.

King, Elizabeth M., and M. Anne Hill, eds. 1993. *Women's Education in Developing Countries: Barriers, Benefits and Policies.* Baltimore, Maryland: The Johns Hopkins University Press.

Namuddu, Katherine. 1992. "Constraints to the Achievement of African Women." Paper prepared for the Conference on Women's Human Capital and Development, sponsored by the Rockefeller Foundation, Bellagio, Italy, May 18–22, 1992.

Odaga, Adhiambo, and Ward Heneveld. 1995. *Girls and Schools in Sub-Saharan Africa: From Analysis to Action.* Africa Technical Discussion Paper. Washington, D.C.: World Bank.

Subbarao, Kalanidhi, and Laura Raney. 1992. *Social Gains from Female Education: A Cross-National Study.* Policy Research Working Papers No. WPS 1045. Washington, D.C.: World Bank.

Tietjen, K. 1991. *Educating Girls: Strategies to Increase Access, Persistence and Achievement.* Washington, D.C. Creative Associates International.

UNICEF (United Nations Children's Fund). 1992. *Strategies to Promote Girls' Education: Policies and Programs That Work.* New York.

______. 1995. *The State of the World's Children.* Oxford, U.K.: Oxford University Press.

2

Social Research: The Debate Today

summary

Social and cultural factors can be crucial to understanding a situation, yet many people are reluctant to examine these factors. They are concerned that their research will not be "scientific." Misconceptions about science are common. Many people have outdated views of what science is.

***Paradigms** are patterns or models for understanding. Science is based upon one paradigm, postpositivism, which has changed considerably in recent years, but other paradigms also exist. Three explored in this chapter are*

- ***Positivism/postpositivism**—the basis of traditional science. There is an objective world. Nature can be understood much as we understand a machine, reality exists, the observer can stand apart from nature, the world is orderly and predictable. The aim of research is to discover causes and effects.*
- ***Phenomenology**—there is no such thing as objectivity, but many, changing perspectives on reality. Getting the whole picture, the context and the meanings, are what is important in doing research, in other words, understanding. The observer is part of the picture, not separate from it.*
- ***Critical theory**—there is an objective world, the observer can stand apart from it, but whose world is it? Elites have had charge of the research agenda, setting the questions, funding the research, interpreting the results. The purpose of research is to empower people to set their own action agendas.*

Is social science a science? Modern science is moving closer to some of the perspectives of the social sciences.

Many of the factors affecting girls' education mentioned in chapter 1 are social factors. The term social is broad, and includes the economic, political, legal, institutional, organizational, community, and cultural considerations that affect girls' participation in education.

You may not be as comfortable about collecting information on social factors as you might be about collecting other data, perhaps material in your own field, such as "straightforward" figures or technical information. Perhaps you are suspicious of so-called soft social data. Even if you are convinced that such information is useful, you might be worried about your ability to collect it or to arrange for it to be collected. This handbook will help you deal with these concerns.

For now, it is simply worth saying that social factors do matter in development projects. Michael Cernea, a sociologist at the World Bank, has pointed out something that most development practitioners have known in their bones for a long time: in a project, the factors that project designers often overlook are the human and institutional ones: "If these are mishandled the project will fail, no matter what national or international agency promotes it" (Cernea 1985, p. 6). Conrad Kottak, an anthropologist, studied sixty-eight World Bank projects and found that attention to human issues in projects is not only humanitarian, but has also proven to be cost-effective, leading to "economic rates of return twice as high as those of the socially insensitive and inappropriate projects" (Kottak 1991, p. 432).

Project designers, however, often do not take these factors into account. Why? Social scientists, who specialize in collecting social data, do not necessarily direct their studies toward the immediate practical needs and constraints of policymakers, project designers, administrators, and the people in the "front lines," those who actually have to live with the problems. Often their research takes too long, produces too great a mass of information, does not spell out a program for action, and is written in highly specialized language.

Development expert, Robert Chambers (1983) points out the predicament: "We have technically illiterate sociologists, on the one hand, and socially incompetent technical experts, on the other." Similarly, many technical experts working on practical problems of education have narrow, specialized training with little emphasis on people factors.

Eventually, hard experience teaches most practitioners that these factors matter. You may already have found this to be true, but how do you take them into account? Is this stuff you are being asked to study "scientific?" How many people are there in a sample? How will you know when people are telling you the truth? Aren't numbers more reliable? Will professional researchers scorn your results? Doesn't research take two or three years? How will you hold down your job at the same time?

These are all legitimate questions, and faced with them, you may have developed your own system for finding out what people need and want. The most common system is the DeValera model, so-called after a prime minister of Ireland, who said "When I want to know what the people of Ireland think, I only have to look into my own heart." "Old hands" often use this approach. It certainly saves a lot of time on the road, but has no other useful function. Another system development experts often use is what Chambers (1983) calls development tourism, that is, making brief trips, usually to convenient areas in the dry season, talking to easily accessible people, and producing "quick and dirty" unreliable results. Until recently, the alternative was the "long and dirty" approach, seen in some Ph.D. theses, and huge surveys that take years and may produce material that is not only irrelevant, but costly and badly out of date.

There is, however, a middle ground that builds on the fact that you know more about social research than you think you do, and on the fact that local people you are working with can help you more than you may have thought. Another helpful factor is that in recent years, other people facing the same problems as you have been cooperating across a wide variety of fields and disciplines to develop research methods that produce timely, valid, relevant, useful, and cost-effective information. After you have learned some basic research techniques, chapter 14 will look at some of these special approaches.

In the rest of this chapter, we will be looking at some idea systems that have had major consequences for how and why research is done. These ideas are included here because they give us some insight into the newer approaches to research and development. They will help those people who are still worried about how "scientific" social research is. They are also important for people who suspect that there are more perspectives to a situation than Euro-American ones, "official" ones, or those of the most powerful people or nations.

Even if you are not worried about any of these issues, it does help to know that today we are in the middle of the Second Scientific Revolution. When caught in a revolution, having some notion of what is going on is always a good idea.

One of the nice things about studying a book on your own is that you do not have to follow the author's plan. The rest of this chapter is theoretical; it contains no practical instruction on how to do research. But perhaps you have an urgent practical problem: you cannot get parents to enroll their girls in the first year of school, and the school year is about to begin. Or perhaps some hotshot researcher is going to show up in your office next week and you want to be able to ask an intelligent question and understand the answer. ("May I see your research design?" is always a good question, because many people do not have one.) If you find yourself in these circumstances, you are excused from the rest of this chapter, but come back to it when you have a few moments to relax and put your feet up. It will help you to understand why you are doing what you are doing.

HOW DO WE KNOW ABOUT THE WORLD?

For those who are still with us, here is a ☆ for persevering.

Although most experts now recognize the importance of social factors in understanding development-related issues, some people in development and education circles still have niggling suspicions about the social sciences: are they scientific? Their reasoning is something like this:

Human factors are too broad and too vague

↓

Therefore, they can't be measured

↓

Therefore, they aren't quantifiable

↓

Therefore, you have no numbers

↓

Therefore, you have no hard data

↓

Therefore, human factors aren't scientific and you couldn't plan a project based on them

Today, however, all thinking about the way we understand the world, including science itself, is undergoing a profound change.

Traditionally, two techniques have dominated development-related social research: surveys, including censuses, which have been the most commonly used; and participant observation, or watching what people do and asking them about it. Sociologists, economists, educators, agricultural scientists, and health workers, among others, are the most frequent users of surveys. Anthropologists are more likely to use participant observation. Surveys are often described as quantitative, that is, they produce results in number form, while participant observation is qualitative, and produces results in words. More recent approaches, such as rapid assessment techniques and participatory approaches (see chapter 14) often combine both, with a heavier emphasis on the qualitative. But this quantitative-qualitative distinction is a somewhat simplistic, shorthand way of summarizing a much more fundamental debate.

The Debate

What is reality? Does a single, absolute reality exist, or are there many, changing perspectives on reality? Can reality be known at all? How? Some of these questions are the kind that creep up on people in the middle of a sleepless night.

Other people think about these things in the daytime as well, for example, people who are avoiding a particularly boring task, but professionally, it is the work of specialists in the philosophy of knowledge, who ask "What is the nature of reality?" "What is the nature of human knowledge?" "How do we go about finding knowledge?" Philosophers have tried to answer these questions for at least 2,000 years, and the debate continues today. Unfortunately, the literature on these subjects is about as user-friendly as a tangle of wire coat hangers, as you will probably guess from some of the words that come up later in the chapter.

It is important for beginning researchers to understand the different answers to these questions, because they lead to different ways of doing research and different ideas about what is acceptable evidence. As you do your research, the choices you will make about what to study and how to study it, even those choices you think are "only common sense" or "natural," will probably be based on one of the approaches we will be discussing.

You should be familiar with the features, strengths, and weaknesses of each approach. You should also realize that there is no single way to acquire knowledge. There are many paths to knowing things, and this discussion presents four of them.

The answers that philosophers have offered to these questions form sets of assumptions called **paradigms**. A paradigm is a set of underlying beliefs about the way things are. For example, the way European educators think and have thought about children's natures constitute different paradigms: in the eighteenth century, they often thought of children as small adults, born with a faulty human nature. A proper education required vigilance and punishment to curb their "naturally" bad tendencies. In the late eighteenth and early nineteenth centuries, the influence of the European Romantic school of philosophers led to a belief that childhood represented a pure, uncorrupted human state, so teaching practice reflected that, and children's capabilities were allowed to develop "naturally." Each had a different notion of what was "natural."

Paradigms are neither rational nor irrational—they are nonrational—they fall outside the boundaries of rationality. They cannot be proven one way or the other, and they tend to be self-confirming. According to the first paradigm, if children did not turn out the way one wanted them to, they had not been molded and punished enough; according to the second, their original natures had been corrupted by an interfering society.

The approaches discussed in the rest of this chapter are paradigms about how to understand the world we live in. None can be proved or disproved as right or wrong.

PARADIGMS 1 AND 2: POSITIVISM AND POSTPOSITIVISM

In research, one paradigm has been dominant for more than 300 hundred years: positivism, and its successor, postpositivism. For many of us it is the only one we know, because it forms the basis of modern science. Among researchers pure positivism—a belief that only observable, objective, provable, hard facts count—was fading even in the 1950s, but generally, the person in the street is still a hide-bound positivist. Are you one of those people? Hold on to your hat.

Positivism is based on the assumption that reality exists: it is "out there." Nature is like an orderly machine, a great clock that operates according to unchanging universal laws. We can find out the way things are, what is really happening. We can unlock the secrets of nature if we ask the right questions, just as we can understand the workings of a clock if we take it apart and study it carefully. The "facts" we discover are true if they correspond to "objective reality." The relationship between the researcher and nature is dualistic. The researcher does not have to be part of nature. The researcher can stand apart from nature and observe it objectively.

In this paradigm, the world is stable, consistent, predictable, and orderly. Things occur in a single-line order of cause and effect: A causes B. Causes in both the natural and social worlds can be studied in the same way, through experimental procedures. The researcher singles out and examines the relationships between **variables,** or separate aspects of reality, just as one might take apart and examine the relationships between parts of a clock. This is called **deduction**: determining in advance what is important to study and selecting only those elements for examination, for example, only looking at certain parts of the clock. The examination is done through **empirical** (based on the senses) observation and tests, such as experiments or statistical analysis. Because measurement is **standardized**, that is, carried out in the same way each time, using the same **instruments**, such as questionnaires or tests, on all the people in the study, one can repeat the same procedures with other groups and make comparisons. In positivistic research, much time and effort goes into developing the instrument. If it is a questionnaire, the questions are carefully thought out to make sure they address the variables that interest the researcher, the questions are pretested on people to see if they produce the required information, and the people administering the questionnaire are trained in exactly what to say and do. Much depends on the instrument. With other paradigms, as you will see, this is not as important.

If our research can identify laws of cause and effect and the conditions under which they apply, we can explain past events and predict future ones provided, of course, that our explanation is correct and the conditions are the same. Our study has great breadth. Given that reality is absolute and nature is orderly, our findings will be true anywhere in which the same circumstances exist.

However, this can present a problem. Because positivistic research is often carried out under experimental conditions rather than in natural settings, it is unlikely that you will come across the same conditions except in a similar experimental setting. Real life, of course, is not an experimental setting. As a result, we say that our results have high **internal validity** (are valid in that setting), but not necessarily high **external validity** (valid in other settings), because the experimental setting is artificial. If you give children a treat before an examination and find they do better than children who did not get a treat, you might conclude that treats improve examination success. You can carefully control the situation so that the children in both groups have exactly the same amount of lighting, air, noise, study conditions, and so on so that you are satisfied that it is the treat that made the difference, but in real life will the treat have the same effect on children whose surroundings will not be as carefully controlled? Will other kinds of treats work too? Your experiment does not answer these questions.

The research techniques used in the positivistic approach are usually, but not always, **quantitative**, because the variables are clearly defined, can be measured, and the results can be converted to numbers. You might define "being a good student" this way: "achieving an average of 80 percent on examinations," "regular attendance at school, that is, not missing more than one day a month," and "frequent participation in school activities, namely, membership in at least two clubs." Using these definitions, measuring the students and counting the good ones will be easy. The term "quantitative" is often used to refer to the entire paradigm we have been discussing, when, in reality, it is simply a description of the most common way of handling the data.

If you can isolate what you consider to be the causes and effects of something, positivistic strategies are good for finding out why something has happened, or for predicting that under certain circumstances something will happen. Perhaps you can begin to see that this kind of prediction is not the same as prophecy. Science cannot predict the future except in very limited circumstances.

Some of the strengths of the positivistic approach, such as breadth of coverage and the possibility of making comparisons, are also the source of its weaknesses. For example, information in many international agency reports is collected and grouped in such as way that it permits cross-country comparisons, like the information in table 2-1, which is a United Nations Children's Fund (UNICEF) publication.

Table 2-1. Social Indicators in Selected African Countries, Various Years

	Gross enrollment ratio, 1988 (percent)		Gender gap, 1988	Adult literacy rate, 1988 (percent)		Per capita GNP, 1987	Total fertility rate, 1988	Under-five mortality rate,	Life expectancy at birth, 1988
Country	Male	Female	(percent)	Male	Female	(US$)	(per 1,000 live births)	1988	(years)
Lesotho	102	123	-21	62	84	370	5.8	136	56
Togo	124	78	46	53	28	290	6.1	153	53
Chad	73	29	44	40	11	150	5.9	223	46
Central African Republic	83	51	32	53	29	330	5.9	223	46

Source: UNICEF (1992, pp. 76–79).

Table 2-1 helps us to look at similarities and differences between countries and to test ideas quickly. In the introduction to this book we said that countries that have a big gender gap between boys' and girls' education also have worse social indicators. Tables organized like the one above allow us to make such associations. Does a country have a big gender gap in education? Does it have higher fertility rates or lower literacy rates? Such tables can allow you to check quickly and to see how your country is doing in comparison to other countries.

The disadvantage is not only the obvious fact that systems, such as educational levels, may not correspond or that records are not kept the same way in each country. For example, in some countries literacy may be defined as the ability to sign a marriage license; in others, it is based on performance on a test. Sometimes literacy assessments are based on self-assessment during a national census, but in other cases national authorities simply provide national estimates. It may also be the case that people with no schooling are classified as illiterate, and in other cases, some part of the population, such as nomads, may be excluded. Who is considered an adult also varies. Sometimes the term refers to people as young as nine; in other cases it refers to those fifteen and older (Greaney 1994, p. 222). Reports such as the World Bank's *World Development Reports* will tell you what is meant by each term used in the report, but that does not necessarily mean that countries supplying information for the reports have always collected the information according to such definitions. A more fundamental disadvantage when you are dealing with social information is that people in different countries or cultural groups may define concepts like "health," or "nutrition," or "employment," or "households" in different ways, making comparisons difficult, and sometimes meaningless. Among your own people, for example, think of what the phrase "a good daughter" means. Now think of another cultural group that you know: what do they think of when they think of a good daughter? Is grouping the two ideas together easy?

Another problem is that the categories chosen for study reflect the variables that the researcher considers important. Other variables and definitions of variables are ruled out because they are not being looked at. For example, you have a theory that women's health and welfare rise with their level of education. Let's say you define health and welfare under the variables "life expectancy at birth," "births attended by health staff," "maternal mortality," and "infant mortality." Access to contraceptive measures, caloric intake, work hours, and fertility may also be relevant, but your definition has ruled them out. You can see, therefore, that you need to know a lot about a situation before choosing the variables to study and defining what you mean by them, and if you are trying to use them on different groups of people, they should have some meaning for those groups. Eventually, however, you must choose so that you can decide what to look at and what to ignore, and also so that you can make clear to others, perhaps people who are working with you on your research or those who will read your study, what exactly you were looking at.

The paradigm we have been discussing is the one that most people still think of when they think of science, but for some time now, scientists have recognized a number of problems with it, and a modified version, **postpositivism**, has emerged. The postpositivist position is that although a real world does exist, imperfect humans cannot fully comprehend it. Gone also is the idea of the independent, value-212free observer, because observers cannot stand apart from nature. In fact, the entire research process is shaped by the interaction between the observer and the observed. How do we get around this problem? Postpositivists say we must not give up the struggle for objectivity. We must still aim for it despite these messy "human" problems. To do this, observers must be honest and forthcoming about their methods and assumptions, and other scholars must carefully scrutinize their research.

Also, we should take a more thorough research approach. We should use as many researchers, methods, theories, and sources of information as possible so as to strengthen the findings. We should use natural as well as experimental settings, and qualitative as well as quantitative methods.

Most people's misconceptions about science and research arise from the positivistic paradigms. For example, we tend to believe that when we give a single name or label to what is actually a culturally defined bundle of behaviors or ideas, like "development," or "intelligence," or "personality," it therefore really exists in that form and can be measured. We assume that tests measure what they claim to measure, that the personality test you took in a newspaper really does measure your personality. Once measured, the results can be converted to numbers. Anything in numbers is seen as more scientific than anything in words, and because we also confuse **precision** (exactness) with **validity** (soundness), anything in extremely precise numbers, like 8.243, is better yet. We believe that using instruments is more scientific than using a human (perhaps even the human who designed the instrument). Instruments have the added advantage of putting distance between the observed and the observer, thus guaranteeing "objectivity." But as one education expert points out, all that it really guarantees is distance (Patton 1990). A questionnaire, therefore, is more "objective" and "scientific" than an interview in which exactly the same questions are asked.

Unconsciously, some people also think that the more a body of material is processed, the more scientific it is: a sample is drawn, a questionnaire given, the answers are checked off in boxes, the results are coded in numbers, the numbers are fed into a computer, and the computer results are grouped and statistically analyzed. Thus, our vague "yes" to a badly-conceived question passes into the system and comes out with the weight of 300 years of science behind it. Finally, the source of material is important: some people think information from officials, such as government ministers or project directors, is more objective; information from local people is impressionistic; and the researcher who argues for the value of the local perspective is accused of going native.

Paradigm 3: Phenomenology

The **phenomenological** paradigm argues that positivism may give facts, but it does not give meaning or understanding.[1] Phenomenology denies the existence of an objective reality: what is important is reality as people perceive, experience, and interpret it. If you have ever been involved in a large family dispute, you may have seen that each person saw things in a different way, and that each person may have been "right." So phenomenologists believe in multiple realities, each of which is a social construction of the human mind. There is no bare, absolute reality. People use models—cultural, historical, group, and individual—to organize, interpret, and reconstruct their perceptions. *That* is reality. Knowledge is the result of an interaction between people or, in the case of the physical sciences, between people and objects. Facts are created in this process, not discovered. The researcher is part of this construction, not independent of it. The researcher's task is to interpret or make sense of these constructions rather than to predict.

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[1] The phenomenological paradigm is sometimes called, with some variation in meaning and emphasis, the hermeneutic, relativist, constructivist, interpretivist, or emic approach.

The perspective of the phenomenologist is **holistic**: the whole of the situation, individual, organization, or project is greater than its parts. Phenomena can only be understood in this total context, not through the neat variables that the positivistic researcher has selected for study.

Phenomenologists take a **naturalistic** approach, rather than an experimental one: researchers study the actual situation as it develops naturally. They do not attempt to identify the variables before the research begins or to manipulate the research setting; the variables emerge or unfold from the research like the features of an ancient city emerge under the archaeologist's brush. This is called **induction**. Unlike an archaeological site, however, the situation is seen as dynamic and changing. Descriptive data, which we might get from participation, from observation, and from interviews, allow us to get an insight into the complex web of interaction, which may not be understandable in a simple, single-line, cause and effect way.

People who take this approach argue that theories and facts are not objective, but are value laden from the start. The very act of choosing one variable to study rather than another and the definition of that variable reflects values: for example, investigators often study the causes of homosexuality; they do not study the causes of heterosexuality (Judd, Smith, and Kidder 1991, p. 5). We also have a lot of research on what to teach children, but very little on what they might teach us.

The techniques phenomenologists use are usually, but not always, **qualitative**, such as interviews and participant observation. The validity of their results is based on the skill of the researcher rather than on the careful development and administration of the instruments. Indeed, the researcher *is* the instrument. Phenomenologists analyze their material through content analysis and case studies.

The advantage of the phenomenological approach is that one comes to understand the context of the situation and appreciate the complexity and interdependence of the various aspects of the situation. Studies are thought to have greater depth. For example, in the field of participatory learning approaches (see chapter 14), **well-being** is a commonly used technique: local people, often drawn from a variety of occupations and statuses and from both sexes, are asked, either individually or in groups, to rank all the people in the community by well-being. They sort a pack of cards with the name of each person in the community on a card and create several piles. These piles reflect shared local conceptions of well-being. Perhaps in one community well-being means cash income or ownership of animals, while in another it means the presence of a male in the house, the ownership of technology, the ability to get credit, a high worker-dependents ratio, or having a relative working for the government.

Obviously, using this method will give you a good picture of local ideas, but another community might have very different ideas about well-being, so you cannot assume that your findings will apply to it. Comparing people's level of education by their well-being across a number of groups using this approach would be difficult if each has a different idea of well-being. If you used a positivistic approach, however, you *could* make comparisons by developing one set of common categories such as having metal roofs, telephones, and plenty of daughters. The problem is that they might not mean much to some (or maybe all) of the groups involved. Nomadic herders, for example, would not see well-being this way.

Phenomenological studies can take a long time (though in fairness, designing, administering, and analyzing a large survey can also take a long time). If you are looking for funding for your research, you should know that many sponsoring agencies and funding bodies will expect you to provide a clear-cut statement of your research problem, to spell-out the variables to be studied, and to submit a budget and a timetable before the research begins. By now, you should be able to see that phenomenological approaches do not easily fit into this pattern (for advice on this problem, see Dobbert 1990).

PARADIGM 4: CRITICAL THEORY

A final paradigm, **critical theory** or ideologically-oriented inquiry (Guba 1990, pp. 23–25) shares with post-positivism the idea of an imperfectly perceived, but still quite definite, reality "out there." But the important question asked is: "*Whose* reality are we talking about?" Because values shape every aspect of the inquiry—the paradigm, the questions selected, the researchers, the methods, the findings, the recommendations, and so on—whose values are being used? Critical theorists say that in most research projects, the values are those of an elite—whether it be males, capitalists, Westerners, or others—who choose the questions to be asked and use the results of the research to support their interests and to oppress others.

By contrast, critical theorists interact with participants in the research, rather than manipulate them, to enter into a dialogue and create a "true consciousness" through which the oppressed might then transform their world. The researcher's intent is not simply to collect information and work with people to get an understanding of their current situation (what is); it is to encourage the group to go further and plan action for change. The participants do not just ask "what is?" They ask "what can be?" As two "militant" sociologists, Roseca and Miguel Darcy de Oliveira say, it is the researcher's task to show people that "today's reality is not the only possible reality" (1981, p. 47).

The strengths of this approach (or rather, these approaches, because feminism, neo-Marxism, and some of the participatory approaches fall under this heading) are that historically unquestioned biases are identified and exposed. Other perspectives and approaches are seen as valid. A weakness of many critical theorists is that they assume that it is always *other people* who need consciousness raising, empowering, and liberation. They do not ask the people they study to help *them* become more liberated. For years, for example, Westerners have been concerned about the conditions of women in "less developed" societies. They also assumed that in the process of improving women's lives, their status might be raised to that of Western women. But having an easier, healthier, more productive life and status are not necessarily the same thing, as social scientist Martin King White (1980) has shown. In a study of ninety-three societies, he found that the higher the level of complexity—technological, political, economic—in a society, the lower the status of women relative to that of men. Western women do not necessarily have higher status, even though they live in more complex societies. So the lesson is that we all need our consciousness raised.

However, critical theorists have managed to make us look at the world from perspectives other than that of the establishment. They have questioned the basis of research ideas and means and ends, arguing that historically they have marginalized the less advantaged. This can be seen clearly in various feminist arguments, for example, which show how male-centered research selectively limits or ignores women's roles and experiences (see, for instance, Harding 1987). A critical theory approach in African research on women can be seen in the work of Namuddu (1992) and Longwe (1986).

Is Social Science a Science?

Probably the only time you will really care about whether social science is a science is when someone who does not like the sound of your project or the results of your research attacks it as unscientific. Some researchers in the "hard" sciences, such as biology or chemistry, often dismiss the social sciences as not being sufficiently scientific. (Only relatively recently have social scientists charged the hard sciences with not being sufficiently social.) As you become more familiar with the paradigms on which human inquiry is based, you will probably feel that this issue is not as clear-cut as some think.

Earlier in this chapter, we mentioned a Second Scientific Revolution. "Old" science, which has been based on the physics of the sixteenth and seventeenth centuries, argued that there were absolute, certain laws of cause and effect, neatly located in time and space, that the whole was best understood by breaking it up into parts and looking at those parts separately, and that the observer and the subject were separate. This was the objective way: anything else was subjective. Even philosophers, social theorists, and social scientists, from Hobbes to Darwin to Freud, drew inspiration from this model. Auguste Comte (1798–1857) the father of sociology, even called his subject "social physics." However, a "new" science has emerged in the twentieth century that includes relativity theory, quantum mechanics, chaos theory, and complexity theory, all coming from the hard sciences. Although different, each shares a paradigm: that the whole is greater than the sum of its parts; that things are ever-changing, uncertain, and unpredictable, so that new forms are emerging all the time; that the universe is moving toward increasing complexity; and that observers participate in what is being observed (they help to make the reality that is being studied). Does some of this sound familiar after reading this chapter? Some social scientists had been thinking along these lines for quite a while.

You may have formed some views on these ideas now, but it is important not to fall into the trap of oversimplistic dualism. Some of the dualisms that you might be tempted to create from the paradigms discussed in this chapter are

"Hard" sciences	"Soft" sciences
Experimental strategies	Naturalistic strategies
Deductive approaches	Inductive approaches
Quantitative techniques	Qualitative techniques

Even though four paradigms are presented here, the most common debate is between postpositivists and phenomenologists: postpositivists think phenomenological approaches are soft or subjective; phenomenologists think there is no such thing as objectivity. Positivist-oriented purists group together, as natural strategies, the items in the left-hand box, and phenomenological-oriented purists, those in the right. But is it as clear-cut as that?

Many researchers argue that while these approaches and techniques are mutually exclusive as ideas, they do not have to be exclusive in use. That is, in a particular research project you can use each of these paradigms and the techniques associated with them, sometimes to support each other, sometimes as separate stages in a project, getting both explanation (why?) and understanding (how?). Educator Michael Quinn Patton (1990) describes this as a "paradigm of choices."

Other researchers reject this. Egon Guba and Yvonna Lincoln (1989, p. 11), supporters of a phenomenological approach, argue that paradigms cannot be mixed or used together because their underlying assumptions are not just opposite, or even complementary, but fundamentally different.

In practice, however, many positivists seem to be warming to qualitative research, and soon will probably be claiming that they invented it. By contrast, few phenomenologically-inclined researchers actually take a completely consistent phenomenological approach in their work. As for critical theorists, those of us who are involved in development-related research are all indebted to them for making us less self-satisfied about some of the perspectives that we once took for granted.

But we are not going to solve these problems here. Indeed, as research experts Miles and Huberman (1984, p. 20) have said: "If the debate is unlikely to be resolved during your lifetime, it is probably best to get on with your work, clarifying for yourself and your readers in which camp you are nestled." Certainly, those who just want to know what people in their community think about the need for a preschool do not have to sort the matter out before going down the road with a questionnaire. But it is good to know that it was not God who said that questionnaires are the best way to get information. It was a decision that some people made, and that some others dispute.

In that spirit, this book presents a variety of strategies for planning and carrying out your research, and shows how you might, in practice, mix them and use appropriate techniques. It is true that the strength of each approach lies its own internal logic and integrity, so mixing them prevents the full realization of their power, but otherwise, as one sociologist says, "Nothing bad happens if you do this" (Denzin 1989, p. 9). Your research won't explode.

FURTHER READINGS TO HELP YOU

Cernea, Michael M., ed. 1985. *Putting People First,* 1st ed. New York: Oxford University Press. 1991.

Darcy de Oliveira, Rosica, and Miguel Darcy de Oliveira. 1981. "The Militant Observer: A Sociological Alternative." In Budd Hall, Arthur Gillette, and Rajesh Tandon, eds., *Creating Knowledge: A Monopoly? Participatory Research on Development*. Khanpur, India: Society for Participatory Research in Asia.

Denzin, Norman K. 1989. *Interpretive Interactionism.* Newbury Park, California: Sage.

Dobbert, Marion Lundy. 1990. "Discussion on Methodology." In Egon Guba, ed., *The Paradigm Dialog*. Newbury Park, California: Sage.

Eisner, E.W. 1991. *The Enlightened Eye: Qualitative Inquiry and the Enhancement of Educational Practice.* New York: Macmillan.

Guba, Egon G., ed. 1990. *The Paradigm Dialog*. Newbury Park, California: Sage.

Guba, Egon G., and Yvonna S. Lincoln. 1989. *Fourth Generation Evaluation.* Newbury Park, California: Sage.

Kottak, Conrad Phillip. 1991. "When People Don't Come First: Some Sociological Lessons from Completed Projects." In Michael M. Cernea, ed., *Putting People First.* New York: Oxford University Press.

Miles, Matthew B., and A. Michael Huberman. 1994. *Qualitative Data Analysis,* 2nd ed. Thousand Oaks, California: Sage.

Patton, Michael Quinn. 1990. *Qualitative Evaluation and Research Methods,* 2nd ed. Newbury Park, California: Sage.

Pitman, Mary Anne, and Joseph A. Maxwell. 1992. "Qualitative Approaches to Evaluation: Models and Methods." In Margaret D. Le Compte, Wendy L. Mellroy, and Judith Preissle, eds., *The Handbook of Qualitative Research in Education*. San Diego, Texas: Academic Press.

Sechrest, Lee. 1993. "Roots: Back to Our First Generations." *Evaluation Practice* 13(1):1–7.

UNICEF (United Nations Children's Fund). 1992. *Strategies to Promote Girls' Education*. New York.

Part II

Planning Your Research

3

What Do You Want to Study and Why?

summary

All research requires planning. Some dimensions of research to consider are the following:

- *Is it* ***basic*** *(knowledge for its own sake) or* ***applied*** *(to be used toward a practical end)?*
- *Is it* ***descriptive*** *(providing a picture), or is it* ***explanatory*** *or* ***predictive*** *(showing relationships, including cause and effect, between events in the past or the future)?*
- *Are you asking "****What do I see these people doing?****"(research from your perspective) or "****What do these people see themselves doing?****"(research from the perspective of those participating in the study)?*
- *Will your research be* ***extractive*** *(you determine the issues, choose the approaches, and carry out the research), or will it be* ***participatory*** *(local people help to identify the problems and concerns and participate in gathering, analyzing, and using the information)?*
- *What will it cost?*

Just as you would plan an important journey before setting out, you must plan your research, or you will wander off the track, waste time and money, or abandon the project. Your research design is the overall plan that tells you what information you need to collect, what techniques to use, and where to get the information. Whatever research paradigm, perspective, or approach you take, you must have a plan. It's not unusual for the planning and preparation stage to take up a third of the entire time you have allowed for your research. Box 3-1 shows the stages involved in carrying out your research. Generally, the remaining chapters in this book follow this order, and each will tell you where you are in the sequence. However, as the box shows, chapters 4 and 5 keep popping up. They each alert you to a number of important decisions you will have to make. Before you can make some of the decisions, however, you need to know more about your sources of information (chapters 6 and 8) and how you will get the information (chapters 7–14). Then you can take the decisions necessary to finish the design you started in chapter 4 or chapter 5.

STEP 1: GET YOUR RESEARCH IDEA

This chapter deals with the first three stages. Where do you get research ideas? Your own interests and experiences or those of others may suggest ideas to you. Perhaps you are simply wondering about something, *Box 3-1. Research Stages*

Stage	Chapter
Step 1: Get your research idea	Chapter 3
Step 2: Clarify the goals and purpose of your research	Chapter 3
Step 3: Choose your perspective: etic or emic	Chapter 3
Step 4: Develop a rough research idea and refine it	
• Nonexperimental research	Chapter 4
• Experimental research	Chapter 5
Step 5: Create a research statement or hypothesis	
• Nonexperimental research	Chapter 4
• Experimental research	Chapter 5
Step 6: Identify the subtopics for study	
• Nonexperimental research	Chapter 4
• Experimental research	Chapter 5
Step 7: Make decisions about sources of information	Chapters 6, 8
Step 8: Make decisions about information gathering techniques	Chapters 7–14
Step 9: Complete the research design	
• Nonexperimental research	Chapter 4
• Experimental research	Chapter 5
Step 10: Obtain the information	Chapters 7–14
Step 11: Record and organize the information	Chapter 15
Step 12: Analyze the results	Chapters 16, 17
Step 13: Present the results	Chapter 18

for instance, why people in one village are always ready to try a new idea, while people in another are reluctant to make any changes. You may have general questions, say, what would it take to get parents to send their daughters to school? Why are girls doing less well than boys in school? A World Bank (1994) publication, *Questions for the Analysis of Female Participation in Education in Sub-Saharan Africa,* raises these and other kinds of questions. You might consult it for ideas, but you are more likely to be reading this book because you have come across an immediate problem that needs to be better understood or that requires some action: for example, parents in your area are worried about their daughters losing their traditional values if they attend school. What do they mean by this and what can be done about it?

You can also get your ideas from research that other people have already done. The introduction to this book has already mentioned some ideas. The professional literature is the best source for getting these kinds of ideas; look at chapter 8 for some useful material. Professional journals are often written in specialized language and assume some background knowledge of the subject, and maybe of previous research done on the specific topic. Once you become familiar with the material, you might do your own research to see if

- A theory being used in a professional article or book can be applied in a new setting, to different people, or to a new problem, or if a different or better theoretical explanation is available for what the author found
- The author's findings are valid in your setting
- The research techniques used in the study could be applied to a different problem, or other research techniques could usefully be applied to the same problem
- Researchers with different characteristics, women as opposed to men, for example, obtain different results.

A final possibility is that an organization, a ministry, a village, or a school has asked you to carry out a piece of research. In this case, you will have to work closely, *at all stages of the research*, with the people who commissioned it. You will not make some of the decisions about the steps at the beginning of this chapter by yourself. Recent research by the United Nations Children's Fund shows that the best predictor of a good study is active partnership by all the participants (Hursh-César 1991, p. 24). Be sure you all agree on the focus, the approach, the methods, the costs, the time, the interim reporting to the sponsors, whether you will be required to make recommendations, who "owns" the raw data (preferably you), and what form the final presentation is to take (a talk? a report?).

Make certain you understand the functions and powers of the people who commission the research or you could end up making recommendations that they are powerless to implement. Also watch out for some common problems in commissioned research, namely:

- The research is not needs-driven. It is being commissioned because research is fashionable or prestigious, or because someone has some money on hand, or both.
- The organization or group cannot or does not intend to do anything about the problem. Either it is not in their power, or they have already made up their minds.

If you want your research to have an impact, get all of this clear first.

STEP 2: CLARIFY THE GOALS AND PURPOSE OF YOUR RESEARCH

Why you are doing your research, your aims, your perspective, and the role people who participate in your research will play all have a part in shaping your research.

Basic and Applied Research

What is your research going to be used for? The aim of **basic research** is to advance human knowledge with no particular application in mind. Usually basic research, which can be expensive, has no urgent public audience, and therefore no one rushing to fund it. It is usually done by academics, who hope to contribute to the development and refinement of theories. They or others may then apply these new insights to specific problems.

Applied research, by contrast, usually addresses a practical problem. You may want to find out how to accomplish a goal or why something has happened. An educator might ask, "How can we make science classes more relevant to girls?" or "Why have children stopped using the local libraries?"

Applied research can take a number of forms: for example, **evaluation research** is common in the world of education and in development programs and projects in developing countries. Evaluation research can be used to assess a problem or need or to select a program or a project, monitor it as it proceeds, and assess it afterwards. The meaning of some of these terms varies from one field to another: for example, in many development projects the term evaluation is reserved for assessing projects after they are completed. In education it refers to research on any stage of the project once it is under way. There is a rich literature on evaluation research. A good handbook for the researcher is Valadez and Bamberger (1994).

Another type of applied research is **action research,** which is done to get enough information to solve a problem. It can be used for a range of activities, from simple troubleshooting within an organization or community to militant mobilization of a group of people. The people involved may be encouraged to determine the sources of their own problems or, if the researcher is committed to a particular ideology, such as feminism or Marxism, they may be encouraged to consider their problems within that framework. Action research often draws upon the people involved in the situation as active participants in the research process.

Descriptive, Explanatory, and Predictive Research

Research can describe, explain, or predict.[1]

Descriptive research includes exploratory research to get a picture of a situation, behavior, or attitudes before planning further research: community studies, needs assessment, organizational reviews, and generally any research that presents a picture of a situation, place, activity, behavior, or event. The basic question you are asking is what: "What is happening?" "What has happened?" "What do people think?" For example, "What is the picture in relation to girls' education in my district?" "What went wrong with the new program for increasing girls' mathematics scores?" You are not trying to prove cause and effect, so your research will not be experimental.

Explanatory research is research that shows relationships after the fact. "How did reduction of school fees affect enrollment?" "Why did the introduction of single-sex schools lower girls' mathematics scores?"

Predictive research states what will happen or how it will happen before the event. You are asking why or how: "What effect will gender sensitization programs have on villagers' attitudes toward girls' education?" "Will attendance increase if we subsidize the cost of girls' school uniforms?"

There are many ways of explaining something. Draper (1988) shows that explaining can involve making something clearer, giving reasons, showing why a conclusion has been drawn, or making a causal statement.

For cause and effect studies you will probably test a **hypothesis**, or a statement of the relationships between two or more things. You can do this in several ways: conducting an experiment, doing what anthropologist Russell Bernard calls "thought experiments," or using survey questions. If you do an experiment, your research design will be shaped by the answers to the questions in figure 5-2 in chapter 5. If you are using a survey to test your ideas, you need to look at chapter 4 to plan your questions, chapter 5 to understand the fundamentals of experiments, and chapter 9 to understand more about surveys.

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[1] It is easy to get confused about the use of these words. If you are interested in why people think the reduction of school fees affected enrollment (rather than what effect the reduction actually had on enrollment), you are describing a situation, not explaining what happened. If you want to show how something is being done, like a new gender sensitization program, you are also describing. Only when you are looking for cause and effect are you doing explanatory research.

You might think that descriptive research has little value. Why not get the real causes and effects? Why bother with what people think about causes and effects? But people base their actions on what they think: for example, there is no evidence that boys have better cognitive abilities than girls, but many people still think that this, rather than girls' heavy work loads or gender-biased textbooks, is what causes lower achievement among girls. So when resources are scarce they send only their boys to school. Thus people's views of cause and effect have real consequences for girls' lives.

Your research project may contain descriptive, explanatory, or predictive research, or all three. On a "glamour" scale, these three types would appear in reverse order: most researchers would prefer to be able to predict than to explain and to explain than to describe. Except in a few fields such as anthropology, where researchers describe cultures, or in evaluation studies, where researchers describe what is happening in a project compared to what was supposed to have happened, not many researchers are interested in "mere" description. Some people even argue that work that is purely descriptive is not research at all (see, for example, Leedy 1989, pp. 4–5), but this represents confusion between research and "science" (see chapter 2). Good descriptive research is fundamental to knowledge: you can carry out an elaborate piece of research to explain the causes or effects of something, only to find later that the situation you are explaining does not exist. "Everyone knows" that poorer people in your area send fewer of their children to school. Suppose you were to do a large study explaining the reasons why. The only problem, as someone might later show, is that perhaps poorer people in your area are actually sending more of their children to school. In the meantime, however, your department has launched a major information campaign directed at poor parents.

As a beginning researcher you may be tempted to try to carry out large-scale predictive or explanatory projects that make cause and effect statements, such as "female-headed households are the cause of poor school attendance." You are unlikely to be able to do this for two reasons. First, as you will see in chapter 5, statements at this level are unprovable. Second, you must meet rigid conditions when you are trying to prove cause and effect that can be extremely difficult to meet. But perhaps you can meet them. Consult chapter 5.

STEP 3: CHOOSE YOUR PERSPECTIVE

What viewpoint will shape your research? Your choice will have a practical impact on how you plan your research and the research techniques you choose. This is a complex subject. In this book for beginners we are going to reduce the questions of **perspective** to two: do you want to know

"What Do I See These People Doing?"

or

"What Do These People See Themselves Doing?"

For the moment, we are going to call these "my perspective" and "their perspective." In the professional literature these terms are often referred to as **etic** (ett ic) and **emic** (ee mic), respectively, and are drawn from anthropology.[2]

These two approaches are not ordered on a quantitative-qualitative principle. Each can, in theory, provide both types of information, although emic research is less likely to produce material that would profit by quantitative analysis. Each is important, and they can both be used in the same project. "My perspective," or the etic approach, is by far the most common, and probably the most familiar to you. "Their perspective," or the emic approach, though less common, is a powerful way of understanding a situation, and is becoming increasingly important in development-related research.

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[2] In recent years emic research has begun to appear in both development research and educational research. It is also called, with some variation, ethnoscience, the New Ethnography, ethnomethodology, and componential analysis. In the mid-1950s, anthropologist Ward Goodenough (1956) borrowed the words etic and emic from linguistics: phon*etics* is the study of all the sounds used in speech everywhere; phon*emics* is the study of the sound categories recognized as meaningful by people who speak a particular language. (Your language may not assign any meaning to the click sound that the Xhosa people use, for example). Goodenough borrowed these concepts and applied them to culture: emic categories are those that mean something to a group of people who share a culture, while etic categories are created by the researcher to get a common basis for comparing groups. A robust literature is available on what emic research can and cannot do (see, for example, Headland, Pike, and Harris 1990).

"My Perspective": The Etic Approach

In "my perspective," when you ask "What do *I* see these people doing?" *you* determine what is important in the way of information. You have decided that an objective reality exists. You determine the variables and create the questions or, in the case of experimental research, the conditions under which the variables are tested. People's experiences and behavior are forced into your question and answer categories or your experimental conditions. You probably recognize this as a positivistic approach. Questionnaires, censuses, structured interviews, measures and scales, experiments, and the World Bank's development reports are all based on this approach.

If you know a lot about a situation, *and if your respondents see and experience the world the way you do,* this approach has many strengths and advantages: you can issue a questionnaire or hold some interviews, put the answers into neat categories, and count the answers or run them through a computer. You can compare one program with another, one school with another, one country with another. Two specialists in girls' education, Brock and Cammish (1991), created a questionnaire to find out about primary school children's attitudes toward the value of education for boys and for girls. They used their questionnaire in six very different countries, and found that everywhere boys and girls had quite different notions about the value of girls getting an education at all, that boys wanted more children than girls, and that boys had a better understanding of how to achieve their career goals.

One disadvantage, however, is that you might not ask the right questions. For example, suppose you ask children how often they performed certain activities, such as working in the fields or in gardens, making things, fetching water, cooking, and sweeping. You have decided on the categories, so the answers you get back have to fall into them. In parts of Africa where children spend a lot of time herding animals or selling goods, those categories will not be reflected.

When you use this approach, people will try to fit their knowledge and experiences (truthfully or untruthfully, accurately or inaccurately) into the choices you offer them. If your respondents do not see the world the way you do, or if you have got the wrong angle, people have to rearrange their experiences and knowledge of life into your categories, and they will probably do it, because most people are pretty obliging. They may even be intimidated by your status, or by something as petty as the fact that the questions are typed, into thinking that your way of looking at things is the "right" way. The trouble is that they then go on living and looking at things their way, while you are busily designing a project or preparing a report based upon your way. To the extent that you are aware of this, you may even conclude that your way is scientific and necessary if the project is to operate properly, and that their way is what caused their problem to begin with.

A second disadvantage of this approach is that if you are trying to compare very different groups, you may not be able to develop questions that are equally relevant and meaningful to each group. To solve this, you might create separate questions for each group, but then you cannot compare the results because you have not asked the same questions.

"Their Perspective": The Emic Approach

In "their perspective," the participants tell you how they see things. You may have decided that no objective reality exists from which to create categories of inquiry, so the participants create the categories. This approach is most useful when you know little about the subject, or when the people you are dealing with have very different idea systems. It is also useful when you are so familiar with a situation that you can't see the forest for the trees. It is particularly important, however, when you are concerned with relatively "invisible" or less powerful groups, such as children, poor people, women, the homeless, and nontraditional family forms, because, as some critics would point out, many of the "established" categories of information were created, and are used by, the more visible, the more powerful, the richer, and men.

When you use this approach, you are trying to discover *the idea systems that shape people's behavior*. You are looking for the equivalent of "rules of grammar" that direct their lives and decisionmaking. Because these idea systems are usually somewhat peculiar to a group—children in a Koranic school in rural Gambia; girl street traders in Accra—what you learn will be extremely useful in understanding their situation, but may not be transferable to another group of children in a Koranic school in Sudan, or even in urban Gambia, or to girl street traders in Lagos. Sometimes, however, it is the local situation you need to understand, rather than what you might learn from comparing these people with some other group.

Figure 3-1 presents a picture of a particular school system from the point of view of the children in it. Note how different it would be from that of the teachers. Indeed, note how different it would be from your own local school.

Figure 3-1. What Teachers Do in a Particular School System from the Children's Viewpoint

THINGS TEACHERS DO	Pick on kids	Beat kids	
		Smack kids in the face	
		Push against wall	
		Have a paddle	
		Hit kids	Hit with books
			Hit with yardsticks
		Slam kids' heads down on desks	
		Yell	
		Bitch	
		Send kids to office	
		Send kids to detention center	
		Make whole class stay after [school]	
		Pick kids out who misbehave	
		Act mean	
		Make fun of kids	
		Pick kids out by ability	
		Won't help kids	
		Call kids stupid	
		Lean on kids' shoulder	
		Make kids put nose on wall	
		Cut down kids	
		Assume kids are guilty	
		Keep kids after school	
		Tie kids to desk	
		Embarrass kids	
		Shake kids	
		Make kids sit in a certain seat	
		Give extra assignments	
		Give sentences [to copy out]	
	Talk a whole lot		
	Run A.V [audiovisual] equipment		
	Give tests		
	Pile on the work		

THINGS TEACHERS DO (continued)	Keep you in the book [make you study]			
	Hand out assignments			
	Catch kids	Catch kids fighting Catch kids in the halls Catch kids smoking in the cans [toilets]		
	Try to be cool	Keep cigarettes in shirt pocket Dress cool Crack dumb jokes Cut down kids Give detention		
	Be nice to kids	Let do something special	Let be pet	Let touch drapes Let read orally Let write on blackboards Let run errands all the time Let put stuff on the bulletin board
			Let turn off lights for movie Let run projector Let off assignments Let run errands Let switch assignments	
		Let off easy	Let off detention Let you sleep instead of smacking you to wake you up	
		Give good grades Write a note to another teacher telling her you're staying for her Don't yell Call you by your first name		

Source: Davis (1972, pp. 110–11).

In this school, the researcher did not set out to study conflict, but what emerged was a lot of conflict, not only between teachers and students, as you might have guessed from this figure, but also, in another part of the study, between the students themselves.

Robert Serpell (1982), in a study of parents and teachers in Zambia, discovered that the aptitudes and skills measured on a standard IQ test completely missed some characteristics that rural Zambians thought essential to intelligence in a child. One was "sendability": an intelligent child could be sent on an errand and trusted to alter the instructions given depending on the circumstances he or she encountered. This is not a "baby" or "folk" word for a skill that has an "official" name—it includes a number of abilities that are examined on the IQ test, and some that are not on it at all. But local people evaluated their children on these and other locally-important abilities, and then made decisions about children's potential for different kinds of education, employment, and so on.

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An extensive application of this approach can be comprehensive and time consuming, but it can also be used simply as one part of your research strategy. We will see how to plan such research later. Some of the techniques associated with the "their perspective" approach are **emic interviews**, **cards sorts**, and **triads**, discussed in chapters 4 and 15.

COMBINING THE APPROACHES

Most studies take an exclusively etic approach: researchers create the categories of inquiry. Few are exclusively emic, but some good examples of emic approaches to school studies are those by Davis (1972), Doyle (1972), and Parrott (1972). You may wonder if you can combine the approaches when doing a study. The answer is yes, you can. Here are two examples. You could study a school day according to etic categories that you had created: teacher-student interaction, reading skills development, recreational activities, civic training, and so on, looking at how much of the day is devoted to each, and describing each. You might then use an emic approach to see how the participants, such as teachers, students, and parents view the day (each group will be different). The teachers might categorize the day as you did (that doesn't make it more "correct"). The students might break the activities up into "work," "fun," and "arithmetic." The parents, particularly if they do not approve of the curriculum or the teacher, might break it up into "proper lessons," "that new sex education," and "doing errands the teacher should do herself."

You could also use the two approaches in a sequence. You could use an etic approach to get a brief description of the community: its geography, its history, and its groups: social, religious, ethnic, economic, and political. When you write your study, this will provide the reader with a background picture. (Remember, the community might not have chosen these dimensions. The most important one to them might be "those who are descended from slaves" versus "those who are descended from free people." A good researcher will find this out and include it.) Then you might take an emic approach to the central focus of your study. Perhaps you want to know what girls do during the day. Instead of creating the questions "How much time do you spend in leisure activities? How much in study?" say "Tell me about your day," and let the answers create the next question. Perhaps girls consider "study" as a leisure activity. You will lose that perspective if you ask the questions you created. Chapter 11 shows you how to carry out this kind of research.

PERSPECTIVE AND PURPOSE

If you are doing descriptive research, you can choose either perspective or combine them. If you are doing explanatory or predictive research, you are likely to ask "What do I see these people doing?" There are two reasons for this. First, in proper cause and effect research you have to be able to spell out what you think is the cause and what is the effect before you begin the research. You cannot let the categories emerge as you go along. Second, because you probably would like your results to apply to other situations or groups and not just the ones you studied, you need to use categories that will apply to many situations or groups, rather than ones that represent only one group's unique perspective. This should not stop you from doing some preliminary research to see whether you can devise categories that not only suit your experiment, but also have locally-appropriate meanings. We will explore that later.

Finally, you should consider the stance you want to take in relation to the people involved. Will your research be **extractive**, that is, will you make all the decisions and simply extract the information from people? Or will it be **participatory**, that is, will the participants be partners in the research, deciding the agenda, the issues, and concerns to be looked at; participating in getting the information; and working with you to interpret the results? This is not a question of whose perspective, but rather of the role the participants take in research decisionmaking and activities. You will not be able to answer this particular question until you know more about participatory research, but it is an important one. An entire chapter (14) is devoted to rapid and participatory approaches.

Once you have answered these questions about purpose and perspective, we can begin to develop the research plan. As you are developing it, remember that an important part of planning involves budgeting. For example, because of mistakes in planning this book, for which the author by custom takes credit, it has cost about three times what it might have in money, time, and irritation. Try to avoid this. Even if you, like me, are working only for the good of humankind, you still may have to pay assistants and cover the costs of transport, food, and accommodation for yourself and others; writing materials; paper and printing for surveys; stationery and postage; books and reports; equipment such as tape recorders; translators; workshops; entertainment and/or gifts where appropriate; photocopying; computer analysis; and preparing and circulating materials, including your final presentation. You may have to return to a community on a number of occasions, and you may find it a good idea to bring community members with you to a ministry or nongovernmental organization when presenting final results. Try to estimate these costs as carefully as possible. Research need not be expensive, but many projects have come to a standstill because the researcher ran out of money.

Where do you get this money if you need it? Usually you have to prove yourself before an agency or organization will give you any significant assistance. Start with a modest but useful project and see it through. Then you may find that a local organization will give you some form of help, such as a contribution toward transport. "Capacity building" is a popular phrase in development circles these days, and once you can show that you are able to do research, particularly participatory research, at the local level and that you can help others to learn how to do it, agencies may be prepared to work with you. In each of these instances you need to be able to show clearly what you propose to do, why, and how. You should also be clear, if you look for financial assistance, what obligations are placed on you, what level of control the sponsor has, and whether this is acceptable to you.

FURTHER READINGS TO HELP YOU

Bernard, Russell. 1994. *Research Methods in Cultural Anthropology*, revised. Newbury Park, California: Sage.

Davis, Janet. 1972. "Teachers, Kids and Conflict: Ethnography of a Junior High School." James P. Spradley and David W. McCurdy, eds., *The Cultural Experience: Ethnography in Complex Society*. Chicago: Science Research Associates.

Doyle, Jean. 1972, "Helpers, Officers and Lunchers: Ethnography of a Third Grade Class." James P. Spradley and David W. McCurdy, eds., *The Cultural Experience: Ethnography in Complex Society*. Chicago: Science Research Associates.

Draper, S.W. 1988. "What's Going on in Everyday Explanation?" In C. Antaki, ed., *Analyzing Everyday Explanation: A Casebook of Methods*. Newbury Park, California: Sage.

Hursh-César, Gerald. 1991. "Eight Ways to Make Communication Evaluation More Useful." *Development Communication Report* 72:24.

Parrott, Sue. 1972. "Games Children Play: Ethnography of a Second-Grade Recess." James P. Spradley and David W. McCurdy, eds., *The Cultural Experience: Ethnography in Complex Society*. Chicago: Science Research Associates.

Serpell, R. 1982. "Measures of Perception, Skills and Intelligence: The Growth of a New Perspective on Children in a Third World Country." In W.W. Hartrup, ed., *Review of Child Development Research*, vol. 6. Chicago: University of Chicago Press.

World Bank. 1994. *Questions for the Analysis of Female Participation in Education in Sub-Saharan Africa*. Washington, D.C.

What a descriptive approach is good for: getting a picture of a situation
Examples:
  Who's in school?
  What facilities are available?
  When did the program start?
  Where are the most serious problems?
Sample study:
  Anderson-Levitt, Kathryn, Marianne Block, and Aminata Soumare. 1994. *Inside Classrooms in Guinea: Girls' Experiences.* Washington, D.C.: World Bank.

4

Planning Research that Describes

summary

There are many ways of planning descriptive research. This chapter looks at three: the ***research outline*** *and the* ***grid*** *for etic approaches, and* ***grand tour questions*** *and* ***card sorts*** *for emic research. It covers steps four through eight in box 3-1.*

Let us look at two ways of planning descriptive research, one asking, "What do I see these people doing?" (the etic perspective, discussed in chapter 3), and one asking, "What do these people see themselves doing?" (the emic perspective, also discussed in chapter 3). From now on, we will be using the terms etic and emic in our discussion.[1]

ETIC APPROACH

When you are in a situation in which you decide what is important to look at, you might think that you could just get out there and start "the real work" of collecting information right away. Unfortunately, the real work starts much earlier: you must figure out, in an organized way, what you want and need to know. Doing this is a bit like cross-examining yourself, so that everything is clear in your mind before you begin.

This chapter helps you clarify your ideas (step 4 in box 3-1), narrow them enough so that they can be studied in a manageable way (step 5), work out exactly what you are looking for (step 6), and determine from whom you will get your information (step 7) and how (step 8).

STEP 4: DEVELOP A ROUGH RESEARCH IDEA AND REFINE IT

You need to avoid two important problems when developing and refining your research idea. One is choosing an idea that is too big (development, poverty) and the other is choosing one that sounds fancy, professional, or scientific, but that is really not clearly spelled out ("The cost-effectiveness of measurement and testing in viable curriculum development processes"). If you know exactly what you mean by that, fine. If you have come up with it because it will sound good at a conference, you are in trouble. Study things that are real to *you*. Don't be intimidated by jargon. If you follow the process described in this chapter, you should be able to avoid both these problems. If you are working with an organization, use the process to have its staff work out what they want.

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[1] This distinction between etic and emic has nothing to do with whether you have chosen the topic or an organization has commissioned you to study a topic that it chose. It refers to perspectives. You can use either perspective no matter who chooses the topic.

Let us say that you or they want a good description of the general situation in relation to girls' education. We are already into problem number 1: too big. Look at the questions in box 4-1. We are using the journalist's old trick of simply asking "Who?", "What?", "Where?", "When?", "Why?", and "How?" You could create hundreds of questions this way, which would help you to see how big your idea is. You will have to work out in your own mind what you really want to do, because no matter how much time, money, and assistance you might have, you will never cover the entire topic for all aspects of education, for everyone, everywhere.

Box 4-1. Is Your Topic Too Big?

Who do you mean? All girls from birth to adulthood? All social, ethnic, tribal groupings? Girls in school and not in school?

What do you mean by girls' education? Are you going to cover all levels of education and all forms: formal and nonformal, private and public, single-sex and coeducational, vocational and technical? All media: classroom-based and distance teaching?

What aspects of girls' education? Problems? Opportunities? Enrollment? Persistence? Achievement?

What are the consequences of girls' education?

What is provided? The forms and content of education?

Where? Everywhere? The nation? The region? One school?

When? Are you interested in past patterns? Possible changes in the future?

Why educate girls?

Why is education provided in this form, and in this way? What are the aims? What are the policies?

How is education provided? The systems, processes, and structures? How it is assessed? Testing and measurement?

Begin again. Girls' persistence in school is the concern. This is still too broad, but once you have your topic, you can narrow it easily by

- Considering a special aspect of the problem that concerns you, for example, girls at a particular level of schooling
- Defining the words more specifically, for instance, state schools instead of all schools
- Restricting the study to a particular group: poor girls, girls from a specific tribal group, or girls who are in Grade 6 right now
- Restricting it to one geographic area, or to a particular institution or school
- Restricting it to a particular time (or two or more specific times if, for example, you are comparing a group ten years ago with a group today)
- Taking a sample.

STEP 5: CREATE A RESEARCH STATEMENT OR HYPOTHESIS

Now write out a sentence beginning "I want to study…" or "We want to study…" and fill it in. Using some of the narrowing techniques listed, let us say we have come up with the sentence:

> "I want to study the reasons for completing education at Grade 6 in state schools among Grade 6 girls in X District in 1995."

This is your **research statement**. If X District is very large or if it contains a large number of girls, you may have to study a sample of them. Sampling is covered in part III, but whether you use a sample or not, the process from here on is the same. Literary quality is not important in a research statement. What is important is that all the aspects you want to study are included and stand out clearly. When you have finished the narrowing process make sure that the statement still covers what you want to study.

The steps you followed to get this far are:

1. Selecting the topic of interest by asking "Who?", "What?", "Where?", "When?", "Why?", and "How?" and using any other device that helps you to realize how many facets your topic has.
2. Stating what you want to study in one sentence, if possible. If your research has several phases, you may have to use more than one sentence to develop the ideas. Box 4-2 shows some possible situations that might interest you and how each might be converted into a research statement.

Box 4-2. Possible Research Situations and Appropriate Research Statements

Problem	*Research statement*
1. Excluding nonstate schools may reduce the usefulness of your study.	Reasons for leaving school among Grade 6 girls in X District in 1995.
2. Possibly girls also drop out in Grade 2, and should be included.	Reasons for leaving school among Grade 2 and Grade 6 girls in X District in 1995.
3. You may think that there has been a big change in the reasons why girls left school ten years ago and why they leave now, and that measures to deal with the changes have not caught up because people are not really aware of the fact. (Studying the effectiveness of the measures is another project.)	Reasons for leaving school among Grade 6 girls in X District, 1985 and 1995.
4. Perhaps both boys and girls drop out and programs have been developed to prevent this, but you think that they meet boys' needs only, and you need to look at reasons why both girls and boys drop out to assess the program.	Reasons for leaving school among Grade 6 girls and boys in X District in 1995.

3. Defining every major word in your statement so that you have a clear guide as to what you are looking at throughout your research. You can define a word any way you like as long as you tell the

reader what you have done: we have used the phrase completing education to mean finishing one's primary schooling and not continuing to the secondary level. You may choose to define some of the words in your statement according to definitions used in the professional literature in your field. Nonformal education, for example, has a generally accepted meaning in the field of education, and unless you are challenging or refining that definition in some way, you will probably use it or explain why you are not.

Also remember that words like effectiveness, satisfactory, and school age can mean anything. You have to explain what you mean by them. You may say: "I will define the program as 'effective' if 80 percent of the group that is entitled to participate is using it," or "School age includes anyone between the ages of five and twenty-three." You should have a good reason for your definition, and it should be meaningful to the people involved.

If you want to compare the results of your research with that of someone else, or with official statistics, you should use the same categories. For example, unless you have a good reason to do so, why group children into age categories four through nine, and ten through fifteen if school records or the official census groups them as five through ten, and eleven through sixteen?

4. Rewriting your sentence, taking all these decisions into account.

You can see that by using this procedure you are taking a positivistic approach: you are determining the variables to be looked at and defining what each will mean. In the next step, we take the process even further.

STEP 6: IDENTIFY THE SUBTOPICS FOR STUDY

Now that you know what general topic you want to study, you have to break it down into subtopics so you will know what specific information you need to collect. This will be your **research outline**.The easiest way to do this is to identify your **variables**. A variable is any characteristic or attribute that can take a variety of forms, for example, education, sex, marital status, religion, ethnic group, career aspirations, and type of training can all take more than one form. You can have primary education, secondary education, or tertiary education; you can be male or female; and you can be single, married, widowed, or divorced. Each major word or phrase in your research statement is probably a variable, or else a word or phrase that requires explanation to put the situation in context (as in "three African countries" or "Lusaka" in the examples below). Here are three sample research statements, with their variables marked with roman numerals:

(i) *(ii)* *(iii)*
- **Cost-effectiveness** of **distance education** in **three African countries**.

(i) *(ii)* *(iii)*
- **Schooling** and **labor force participation** in **Lusaka**.

(i) *(ii)* *(iii)* *(iv)* *(v)*
- **Examination results** of **girls** in **single-sex schools** and **mixed-sex schools** in **Accra**.

Let us assume we are happy with the statement we worked out in step 5. Our variables are as follows:

i. **Reasons for completing education at Grade 6** in
ii. **State schools** among
iii. **Grade 6 girls** in

iv. **X District in**

v. **1995.**

This research statement has five major words or phrases about which information must be collected. The easiest way to figure out what information is to take each word or phrase and consider what facets or characteristics it could contain, that is, break it down into all its possible parts. (Remember our discussion of positivism in chapter 2, in which we compared reality to a giant clock that can be taken apart for examination?)

The word or phrase you begin with does not matter, but "people" words or phrases and "place" words or phrases are easier, for example, people always have certain characteristics: age, sex, height, weight, marital status, social class, residence, ethnic group, education. "Grade 6 girls" is a people phrase and will have these. Because these girls are students, they will have some special characteristics, such as examination results and number of years spent in school. If you were studying teachers, their special characteristics might include type of training, number of years of experience, special courses attended, and so on depending on the focus of the study. So we will begin with the girls.

Grade 6 Girls

First, make a rough list of all the attributes you can think of for people, such as age, sex, marital status, height, weight, number of children, religion, health, political affiliation, occupation. Keep going. Some may have no bearing whatsoever on your research, but thinking of them and discarding them later is better than forgetting to include them and regretting it later. Now write each on a separate scrap of paper, and see if you can group them in some way that makes sense to you or makes sense in the context of the project. There is no right way to do this. For some projects you might group them into characteristics people are born with versus those they acquire or achieve. For another project you might group them into physical versus social characteristics. You might make more than two groupings or just one long list. If you used physical and social characteristics you might group them this way:

Physical characteristics:	Social characteristics:
Age	Marital status
Sex	Number of children
Height	Religion
Weight	Ethnic group
Health	Political affiliation
	Occupation

Your groupings will make sense only in the context of a particular project, for example, age and sex are physical characteristics, but they can also be the bases of social groupings. And you are born into an ethnic group, so if your sortings were based on groups people were born into versus those they acquired later, ethnic group would end up with age group, sex group, and so on. There is no magic to this. Do what makes sense for your project and the people you are working with.

Make another list of the characteristics the girls will have because they are students: subjects studied, examination results, number of years in school, which school they attend.

Now put all the attributes together in a list (see box 4-3). Leave out any that you feel certain are irrelevant to your project. For example, collecting information on height is unlikely to be worthwhile for this project.

But be careful about making quick assumptions. Some years ago in western Sudan, where people keep no record of age, children who were unusually tall were refused entrance to secondary school on the grounds that they were probably too old. In a case like that, height could actually be a reason for having to leave school.

Box 4-3. III: Grade 6 Girls

A. General characteristics
  1. Age
  2. Area of residence
    a. District
    b. Rural/urban
  3. Ethnic or tribal group
  4. Religion
  5. Marital status
  6. Occupation(s) of
    a. Mother
    b. Father
    c. Self
      i. Domestic work
        a. Hours spent per week
        b. Activities involved
      ii. Other employment
        a. Hours spent per week
        b. Activities involved

B. School-related characteristics
  1. School attended
  2. Number of years in school
  3. Examinations or other assessment
    a. Subjects
    b. Results
  4. Distance from home
  5. School costs
    a. Fees
    b. Other expenses
      i. Books
      ii. Uniforms
      iii. Supplies
      iv. Food
      v. Transport
      vi. Other (club memberships, etc.)

You will easily be able to think of topics missing from this outline that are important in your area or region, and perhaps you could omit some of the topics above. A few of the topics listed earlier, such as political affiliation, have been left out of our imaginary project, but in many studies political affiliation might be an important determinant in whether one has the opportunity to go on to secondary school. This is why we said in chapter 2 that in doing positivistic research, in which you determine the variables, as you are doing in this outline, it is important to be very familiar with the situation. This is another reason why local knowledge and insights are valuable.

X District

We can now take a second variable, the place word, X District. Places (and institutions) by their nature have certain characteristics, like a location, a history, a size, and so on. Bear in mind that you are not doing a detailed study of the district or the school system. You are getting enough information to put the place in context. Box 4-4 sets out the characteristics for X District. As we are studying education, note that we have two sets of characteristics: general characteristics and school-related characteristics.

Here is another way that understanding the general context can help. Suppose some girls tell you that the reason they are leaving school is because they are pregnant and the school officials will make them leave. Under the policy point in box 4-4, you may have discovered that it is not school policy to do so. This is worth looking into. Do the girls simply believe that the school officials will make them leave and therefore plan to do so? Or does a particular school make them leave despite the policy? Cross-checking contradictory bits of information is easier and faster if you have a general picture, but if you find something odd and have no other information about it, follow it up anyway, even though it is not in your outline. Suppose that you discover that one reason girls are finishing at Grade 6 and not going on to secondary school is that no religion is taught there, and parents are not happy about that. That can be covered under curriculum. But suppose one reason is that, as was the case in one project, there were lions around the school and some of the girls were afraid to go (so were some of the boys). You cannot think of everything. Unless you know about it in advance, you are not going to put lions in your outline on the off-chance that dangerous animals might be an important feature of the school system. That does not mean that you should not look into it. Your outline isn't cast in cement, nor is it sacred.

Box 4-4. IV: District X

A. General characteristics
  1. Location
  2. Division
    a. Of larger unit (is it a region, section, etc.)
    b. Subdivisions within it
  3. History
  4. Size
    a. Area
    b. Population
      i. By age
      ii. By sex
      iii. By ethnic group, tribal group, religion, languages, etc.
      iv. By school-age populations
        a. In school
        b. Not in school
      v. By literacy
        a. Male
        b. Female
      vi. By economic activities
  5. Economy
  6. Social and cultural characteristics
    a. Roles and responsibilities of women and girls
    b. Beliefs about desirable female characteristics
    c. Preferred age of marriage
    d. Decisionmaking abilities of each sex
    e. Contribution of each sex to the economy
    f. Beliefs about female nature and abilities
    g. Attitudes toward education for girls
    h. Attitudes toward desirable skills and abilities for girls
B. School-related characteristics
  1. Structuring of school divisions or districts
  2. Types of schools
    a. Levels offered
    b. Public/private
    c. Denominational/nondenominational
    d. Single sex/coeducational
    e. Fee paying/free
    f. Nature
      i. Academic
      ii. Vocational/technical
      iii. Formal/nonformal
      iv. Conventional/distance
  3. Administrative characteristics
  4. Policies, especially in relation to enrollment, gender-related issues (pregnancy, subjects offered, etc.)
  5. Curriculum
  6. Textbooks
    a. Provision
    b. Content, especially in relation to gender
  7. Staff
    a. Numbers
    b. Composition by
      i. Sex
      ii. Training
      iii. Qualifications
  8. Teaching methods

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State Schools

The next point we might look at is the variable state primary schools, which is also a place word. We already have a lot of information on the school system under the heading X District. We could just go into more detail about the primary state school system under that heading, or set aside a special section here to look into it in greater detail as shown in box 4-5.

Box 4-5. II: State Primary Schools

A. Enrollment rates
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

B. Repetition rates
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

C. Persistence rates
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

D. Achievement
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

E. Percentage of students continuing to secondary school
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

Notice point D, achievement. Educators have no simple way of studying achievement. Tests can measure some things, but not others. Later on you are going to have to decide what you are going to take as indicators of achievement, for example, you could use performance on the Primary Learning Certificate.

Reasons for Completing Education at Grade 6

Next we come to what we are really interested in: reasons for completing education at Grade 6. Although making a research outline is tedious, it can almost become a game. You can keep thinking up more subtopics within a variable, and if you do not mind running around collecting unnecessary information, it is not too serious a mistake. But if you go astray now, that is dangerous, because the variables you select here are going to be the basis of what you ask the girls, their teachers, their parents, and others. If you decide on a list of reasons that have no real bearing on the situation, you might never discover your mistake. People are generally obliging, and may even make the mistake of assuming that you know best. For example, you decide the five possible reasons for leaving school are that (a) the grass around the school is too long, (b) the uniforms are unattractive, (c) the students would rather play soccer, (d) the teacher is too short, and (e) other. You would be surprised at how many people will genuinely try to fit their experiences into your categories as best they can. Others will find that your reasons have so little relevance that they will choose "other." Out of 100 people you question, 75 may mark off the box called "other." Everyone, including you, will be baffled.

To avoid this you have to do enough preliminary research to break down the variable reasons into meaningful categories. There are many ways to do this: you could interview a variety of people to get possible reasons; you could do a pilot survey in which you ask some broad questions about why girls leave school, and leave plenty of space for the respondents to write in their own answers; you could look at other studies that have been done; you could look at school records. Doing several of these preliminary activities is a good idea. The school records, for example, may not give pregnancy as a reason, because it might reflect badly on the school or the community.

However you have done it, let us now imagine that you have enough information to break down the variable "Reasons," and here they are: the family cannot afford the costs, the girl is needed to work at home, she is getting married, she has become pregnant, she thinks she has enough education, the family thinks she has enough education, the family is afraid she will be unmarriageable, the girl or her family or both think the education she is getting is irrelevant or that it teaches undesirable characteristics, she is taking a job, she is taking a nonformal course, her marks are not good enough to continue, the secondary school is too far away.

Group these if you can. Avoid giving your groupings value labels like "good reasons for leaving" and "bad reasons for leaving." Box 4-6 presents a possible grouping.

Box 4-6. I. Reasons for Completing Education at Grade 6

A. Costs
    1. Financial costs
        a. Of fees
        b. Of transport
        c. Of books
        d. Of clothing
        e. Other
    2. Opportunity costs (income or labor lost because the girl is in school)
        a. Lost income
        b. Lost labor
B. Domestic responsibilities
    1. Minding children
    2. Housekeeping
    3. Producing food for home consumption
    4. Working on cash crops
    5. Fetching water/fuel
    6. Other
C. Attitudes toward education: belief in negative consequences
    1. Girl will be unmarriageable
    2. Girl will learn undesirable ways
    3. Secondary education undesirable or irrelevant
    4. Primary school education is enough
D. Attitudes toward the school
    1. School environment not secure (danger of pregnancy, etc.)
    2. Not enough female teachers
E. Social and cultural beliefs toward
    1. The role of girls and women
    2. Girls' and women's abilities
    3. The value of education for females
    4. The desirable characteristics that females should have
F. Girls' educational performance
    1. Girls' marks too low
    2. Girls' don't have required subjects
G. Access problems
    1. Not enough places in secondary school
    2. School too far away
H. Other plans
    1. Girl going to train/apprentice
    2. Girl going to marry/is married
    3. Girl is pregnant/has child or children

1995

Finally we have the date. You do not have to break down 1995 unless, for example, you are doing a month by month or season by season study. Then you would list the seasons and make sure that you studied the reasons for leaving in each season. If the school system, the economy, or anything else was very different in each season, you would have to study these factors for each season as well.

If you were comparing reasons why girls left school in 1985 as compared to why they left in 1995, you would do this entire outline for 1985 and then repeat it for 1995.

Putting the Outline in Perspective

Now we are finished. Appendix I presents the entire outline. But we need to pause a moment and get a bit of perspective: just because each section of the outline is broken down in considerable detail does not mean the sections are of equal weight in terms of your time and energy. For example, the reason you are looking at X District is to be able to put your study into a geographic, historical, demographic, institutional, and administrative context. Everything you learn from this part of the outline may occupy only two paragraphs in your final report, if you need to write one. What you learn may help you or others to compare your findings with those of other districts: for instance, your district might have coeducational schools while another has only single-sex schools. Or your district may have a high percentage of untrained teachers while another one has almost none. It may help you to come up with new lines of research to follow later: are girls leaving because they are getting a low quality of education?

While allowing for the fact that something helpful may emerge from this section of your outline, you could spend all your research time collecting the following information for X District (from box 4-4):

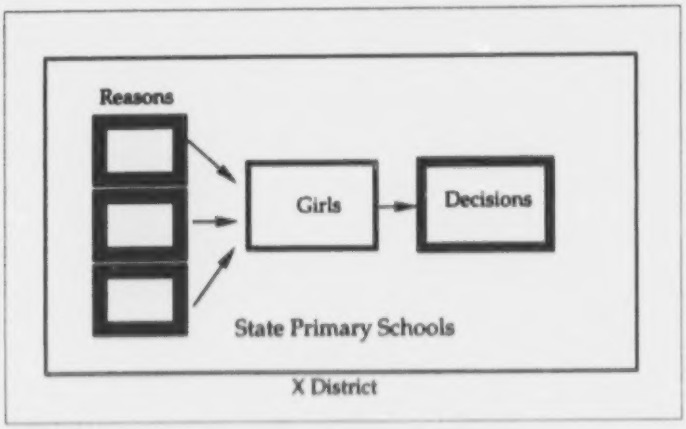
7. Staff
   a. Numbers
   b. Composition by
      i. Sex
      ii. Training
      iii. Qualifications

Remember, you are not doing a survey of teacher characteristics. You are trying to get a picture of the context in which the Grade 6 girls are making their decisions, which is what you are interested in. Try to diagram your research statement to see the "heart" of your research and the marginal areas as shown in figure 4-1: solid lines represent the more central parts of the research and thinner lines the information being gathered for context, with importance being shown by line thickness.

A second caution is that you should not use this particular outline to do a piece of research. There is nothing scientific about it simply because it appears in a book. It was made up for an imaginary country as an example of one way, out of many, to do an outline. Even if you were going to do the same exact project, you should make your own outline using your knowledge of the local situation to make the topics relevant and meaningful.

Not every research topic can be handled in this way, but many can. Suppose you have come up with "I want to study girls. Why don't they have more ambition?" All girls? More ambition than what? Boys? More than girls used to have? What do you mean by ambition? You have assumed that they have less. You had better establish your facts first, and if you are correct, then look at the causes. Why not see first what ambitions they have compared to boys or compared to girls ten years ago? Then your research statement may become: "**Career ambitions** among **girls** and **career ambitions** among **boys** in **X Middle School.**"

Figure 4-1. Putting the Variables in Perspective



If you can show that girls have less ambition (defined and measured in some way) than boys, then you are in a position to look at why. You may decide to look at why people (teachers, parents, and others) *think* they have less ambition. This is a descriptive study, whose research statement may be: "**Perceptions of reasons for low career ambitions** among **girls** in **X Middle School** as held by **parents** and **teachers**."

If you think, in doing these studies, that you got a good idea of what was causing the low ambitions (perhaps no work for adult women in the area or a lack of female role models in the school), you could set up an experiment in which you compared two schools, one that had female role models and one that did not, and see if girls' ambitions were higher in the first school. We will look at experiments in the next chapter.

A Grid Approach

No one likes research outlines. People who take a phenomenological approach think they are rubbish. Even some positivists do not like to see the logical outcome of a positivistic approach laid out quite so baldly. The people who dislike research outlines the most, however, are those who are trying to construct one, because the process is about as much fun as scraping your fingernail on a blackboard. Nonetheless, if you are taking an etic approach, failing to prepare a research outline is like wearing a blindfold to look for an item you lost in a forest: you'll waste time, find things you don't need, get off the track, and even when you find something, you won't know whether it's what you lost.

Another way of figuring out what you need to know is to use a grid. You can use this technique for any subject, but we are going to use a project-related example here. Suppose that you are going to assess a situation to plan a project. List all the aspects of the situation that you think are important. Convert each idea to one word, or two at most. Write each word in its own block down one side of a large box, and then write the same words across the top (figure 4-2). Then locate any particular box, and reading across and down, create a question out of the two words that "meet" in the box. For example, in box F-5, where "Resources" and "People" meet, you might ask "What resources do the people involved have?" and "What resources do the people involved need?" Not all boxes will produce sensible questions for your project, and because every combination appears twice ("Facts" and "Reasons" is one combination, and "Reasons" and "Facts" is another), you may have questions repeated. This is really only a device to help you cover a lot of angles that you can then include in your research or reject. This grid approach also has other uses. As you will see in chapters 11 and 12, you can use it to get questions for interviews or to choose situations to observe.

Figure 4-2 shows part of a grid (the complete grid appears in appendix B. This grid would be suitable for assessing a situation or for evaluating a project. (To assess a situation, leave the grid as is. To evaluate a project, wherever the word situation occurs, change it to project.). For example, box F-4 "How do the people carry out the processes involved?" might help you to look at whether the current staff ("People") in a school are sufficiently trained to carry out a new, more interactive curriculum ("Process"). As you will see, the grid in appendix B is thirteen-by-thirteen, with a total of 169 question cells, but a grid could be much smaller, say two-by-three. The size of your own grid will depend on the problem you are studying and the number of dimensions that seem important. Whatever the size, it is most unlikely that all the questions will be equally important or that you will use all of them.

Figure 4-2. Part of a Grid For Choosing Research Questions

	1 Reasons	2 Activity	3 Needs	4 Process	5 Resources	6 People	7 Places
A Reasons	WHY HAS THIS SITUATION COME ABOUT?	Why was this activity chosen?	Why have these needs arisen?	Why were these processes chosen?	Why were these resources chosen?	Why are these people involved?	Why this place or these places?
B Activity	Why these activities?	WHAT ACTIVITIES ARE INVOLVED?	How does the activity meet needs?	How does the activity relate to the processes?	How do the activities relate to the available resources?	What activities do people carry out?	What happens at each place?
C Needs	Why these particular needs?	What needs are these activities meeting?	WHAT ARE THE NEEDS IN THIS SITUATION?	How do needs relate to the processes employed?	How do needs relate to resources?	What needs do the people meet? What are their needs?	What needs are being met at each place?
D Processes	Why are these processes being used?	How are processes related to activities?	What processes are being used to meet needs?	WHAT PROCESSES ARE BEING USED?	What processes are used in getting resources?	What processes do they employ?	What processes are being used in each place?
E Resources	Why are these resources being used?	How are resources related to activities?	What resources are being used to meet needs?	What resources are needed to carry out the processes?	WHAT RESOURCES ARE INVOLVED?	What resources do people control/use?	What resources are available in each place?
F People	Why are these people involved?	Who is involved in the activities?	Who is meeting these needs?	How do the people carry out the processes involved?	What resources do people have? Who controls / uses the resources?	WHO ARE THE PEOPLE INVOLVED?	Who is in each place?
G Places (locations, sites, institutions)	Why have these locations been chosen?	Which places are used for which activities?	Where are the needs being met?	How do the places relate to the processes?	Where are the resources being used?	Where are the people involved?	WHAT ARE THE PLACES, SITES, LOCATIONS?

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Notice also that this grid asks questions that require judgments that you or your team will make in the process of doing your research. To make the process a participatory one (see chapter 14), the people involved in the situation take responsibility for getting the information that will allow them to make these decisions. For a discussion of participatory evaluation see Uphoff (1991).

The examples here are instances of descriptive research, but the basic principle involved, that is, making your variables explicit, is important for explanatory and predictive research as well.

STEP 7: MAKE DECISIONS ABOUT SOURCES OF INFORMATION

Soon you are going to be ready to assemble your entire research plan: the outline, your sources of information, and your research techniques. When you have finished, you will have a **research design**.

First, for each point in your outline, you are going to have to decide where the information will come from. People? Records? The professional literature? You will probably draw on all of these. In the case of people, you will have to decide what types of people, and maybe even who in particular. In our study of reasons for completing education at Grade 6 in state schools among Grade 6 girls in X District in 1995, we are interested in finding out why this group of Grade 6 girls is leaving, but do we want only their reasons? Do we also want their parents' reasons and what their teachers think? For some points, such as characteristics of the schools, we may name a category of person (principals), or even a person ("Mrs. N'Dow"). Finally, as we discuss later, but the point cannot be made too often, do not restrict yourself to "important" people, or "experts," or people who are easier to reach. Everyone's voice is important when you are trying to understand something.

You will probably also have to consult records and statistics. It often helps to do that before you begin to plan because they may give you some ideas of what needs to be studied. Looking at Hartnett and Heneveld's *Statistical Indicators on Female Participation in Education in Sub-Saharan Africa* (1993), for example, may highlight a particular problem for your country. But even after you have chosen the topic, you will probably need records and statistics to help you get a general picture of, say, the number of girls in school or examination pass rates. Chapter 8 looks at some of the sources available and some of the problems associated with using them.

You may want to look at the professional literature to see what else has been written on your subject. Chapter 8 lists some of the major education journals. If you want to read reports or books related to your subject, you may find books or articles in the end of chapter readings or final bibliography that sound useful. Getting access to them requires the services of a good library, which may have to order them from other libraries, perhaps abroad, or you may be able to obtain them from someone in a university or research institute in your country who is willing to help you. Or perhaps from the author, who may be willing to send you a copy of an article.

You do not necessarily have to look at the professional literature at all. You are probably not trying to make a new contribution to theory or research methods. You may just want to know what is happening in your school or district and do a piece of research that will help you solve a problem.

Once you have made these decisions, you can begin to make a research design. For every point in the outline, the design will show the sources of information that you will use and the techniques for getting the information. Box 4-7 shows the part of our outline that deals with people's ideas about the roles and responsibilities of girls and women. (This point appeared in our outline under "Social and Cultural Beliefs").

Chapters 6 and 8 will give you more information on choosing sources.

Box 4-7. Part of a Research Outline: Point and Sources

Outline point	Sources
Roles and responsibilities of women and girls	Community members: Elders Teachers Parents of girls Other: boys, young men
	Teachers, school officials in X District
	Community activities
	Textbooks

STEP 8: MAKE DECISIONS ABOUT INFORMATION GATHERING TECHNIQUES

For each point in your outline you also have to decide how you will get the information. Will you conduct a survey? Will you interview people? Will you see what the records say? Will you watch to see what happens, for instance, how do girls who say they are leaving because they have no time to study actually spend their time? Part III discusses these and other techniques.

For the moment, let us imagine that you have some ideas about your sources and know enough about research techniques to choose the ones you will use (box 4-8).

Box 4-8. Part of a Research Outline: Point, Sources, and Techniques

Outline point	Sources	Techniques
Roles and responsibilities of women and girls	Community members: Elders Teachers Parents of girls Other: boys, young men	Semistructured interviews
	Teachers, school officials in X District	Survey question
	Community activities	Observation
	Textbooks	Text analysis

This process is carried out for each outline point. Note that for your central topics you should be using as many techniques as possible to get sound information. The use of a questionnaire is mentioned for this point, but of course you would not issue a questionnaire on a single point. You would look through the rest of your research design, see what other points you plan to obtain through questionnaires, see to whom you will put the questions, and decide whether putting them together and giving a questionnaire to that group would be useful. Note also that textbooks are mentioned here, but are also found in point IV. B.6. b. (box 4-4) in the

outline, to be looked at for gender content. This kind of "crossing" will be common, because real life is more complex than an outline. (The particular techniques listed in the third column will be explained in chapters 9, 11, 12, and 13.)

Finally, as shown below, you can put all the parts of your research design together: the outline, the sources, the techniques, and two additional columns to help you keep a sense of perspective (box 4-9).

Box 4-9. The Complete Research Design for One Point in the Outline

Outline Point	Sources	Techniques	What will this tell me?	How does it contribute to my research?
Roles and responsibilities of women and girls	Community members: Elders Teachers Parents of girls Other: boys, young men	Semistructured interviews	What various community members feel are appropriate roles	These views may affect parents' decisionmaking
	Teachers, school officials in X District	Survey	What people in the school system say	These may affect classroom behavior, counseling
	Community activities	Observation	What I can see happening in relation to these roles	What people say and what happens may be different
	Textbooks	Text analysis	How girls and women are presented in texts	Texts may influence girls' behavior and aspirations

The fourth column encourages you to think about whether you need a particular piece of information, and whether what you are planning to do will provide it. The last column reminds you that some parts of your research are more central than other parts. Some only provide context, such as population numbers or facts on the local economy. The point in box 4-9, however, relates to the "heart" of the study.

EMIC APPROACH

The emic approach involves an entirely different way of proceeding. Because you cannot determine the variables to be studied, you cannot prepare a research outline. (This alone may be enough to convert you to the emic approach!) You will be starting with a general topic that interests you—how children categorize the activities in their school or how villagers perceive the characteristics and abilities of boys and girls—but you will be using methods that allow the important dimensions of the topic to emerge, rather than deciding in advance what they are and asking questions about them. For example, in a village in Zambia a group of women gave these causes of poverty:

- "God's creation. That is how God created them, hence no matter how hard they struggle nothing will change."

- "Laziness. One's heart is not desiring to work."
- "Poor planning."
- "Lack of initiative. Not using one's initiative and talents."
- "*Maanu ndibule.* Not mixing with friends because they think they know everything."

Some of these are not categories that an outsider could guess based on "common sense," but they are meaningful to local people. As the investigators in this case point out, straightforward questioning on these issues would have tended to produce simplistic results (Norton and Milimo 1993.)

Emic research can be quite comprehensive and time consuming. The following discussion presents a general way of using the approach to complement other techniques. Emic research can be carried out in several different ways. Two examples are the **grand tour question** and **card sorts**.

The Grand Tour Question

The grand tour question approach (Spradley and McCurdy 1972) begins by asking the broadest possible question appropriate to the situation: "What happens here all day?" "Tell me about the children who come to this school." "What kinds of teachers are there?" The aim of the exercise is to learn how people categorize things and why (types of schools, parts of the work day, kinds of villages, characteristics of successful women, tasks of a teachers' union, sources of conflict in a school, and so on).

Let us say that you are talking to a group of girls about the students in their school.

Question (Q): Will you tell me about the girls in this school?
Answer (A): What do you mean?

Q. Well, what kinds of girls are in the school here? Tell me something about them.
A. Well, there are all kinds of girls here: the poor girls, and the loose ones, and the country girls, and the stuck-up girls, and then, of course, the ordinary girls. Oh, and the handicapped. And the Mandinkas.

Q. Tell me about the poor girls.
A. The country girls—we don't talk to them. They wear funny clothes and they always look hungry when we're having our lunch. Sometimes they hit us. They're very rough.

Q. Tell me about their clothes.
A. They can't afford uniforms so they wear whatever their parents can find for them. We shout names at them.

Q. Tell me about them hitting you.
A. They hit us for no reason at all. We can't help it if they're funny looking.

Q. Tell me about the loose girls.
A. They don't have enough money to buy books or lunch, so they do favors for the teachers or older students and get money that way.

Q. Tell me about the favors.
A. They pretend to talk to them about love and then they get pregnant and have to leave the school.

Q. Do the country girls do favors for men?
A. No. Men don't like them. They look funny—I told you.

Q. Tell me about the rich girls.
A. The rich girls always have plenty of money for books and uniforms and lunches.

Q. Where do they get the money?
A. They do favors for their boyfriends.

Q. Like the loose girls?
A. No. The loose girls don't love the men they go with. They only do it to get money.

Q. Tell me about the ordinary girls.
A. Oh, all the girls from around here are ordinary; nice normal girls like us. We help each other. If one of us is doing a favor for a man because she hasn't got enough money, we'll tell the teacher she got sick.

Q. Tell me about the stuck-up girls.
A. They think they're wonderful. They don't talk to us. They say their parents won't allow them to. We don't care, because they're spoiled.

Q. How are they spoiled?
A. They never have to worry about money or books or lunches. Their mothers and fathers give it to them, even if they have to work extra hours to get the cash. They go with boys because they want to. They don't need the money.

Q. Tell me about the handicapped.
A. They're from the country. They need special help or something and so the government makes them come here to the city and they go to school. Most of them are very poor. Sometimes their families have forgotten about them.

Q. Do they do favors for men?
A. No.

Q. Tell me about the Mandinka girls.
A. Oh, they're Mandinkas. What can you say? They're all poor people from the country who have moved here. They're always hanging around men. See, there's one over there, the one in a wheelchair.

Notice several things about the interview above. First of all, you created only one question of your own, the first one. You might go into more detail about something that interested you in an answer, but basically you are always coming back to the categories the girls gave you in the original answer. Second, it is not your job to set these girls straight. You are trying to find out how they see things—don't point out why the country girls might be hitting them, although you might be sorely tempted—don't mention that your mother was an urban, chaste Mandinka. Finally, notice that these girls have clear-cut categories in their minds that might not seem so clear to someone else, for example, in several of the categories the girls come from the country (including the "country girls"), but in the case of the handicapped, the Mandinkas, and the loose girls, something else puts them in a special group rather than the "country" group. Except for the "rich" girls and the "stuck-up girls" they all seem to be poor. The "ordinary" girls seem to have worked out the same strategy for getting money as the "loose" girls. The only difference is that the "ordinary" girls are all locals. The Mandinka girl in the interview was in a wheelchair—but she was not put in the "handicapped" group. Apparently, in their eyes being a Mandinka is her major characteristic.

So far, what we have looks like box 4-10.

Card Sorts

You can also get the kind of information that we just got from one person or from a small group in the school using a card sort. Put the names of all the girls in the class on cards and ask the girls you are working with to sort them into categories. If they are working in a group, you will be trying to get shared categories.

Box 4-10. "The Girls in This School"

Category	*Enough money*	*Look funny*	*Do favors for money*	*Do favors for love*	*Rural*	*Local*	*Handicapped*	*Special ethnic group*
Country		X			X			
Loose			X					
Rich	X			X				
Stuck-up	X			X				
Ordinary			X			X		
Handicapped					X		X	
Mandinka					X			X

You can test the categories by repeating the process with other individuals or groups in the school. Probably no two groups or individuals will come up with exactly the same categories: some might produce five, some six, and so on, but you may be able to rearrange them into five common categories. You can then go back to the individuals or groups and see if they accept the new categories.

When you have the agreed categories, you can reverse the process and present a new group of students in the same school with the categories and the pack of cards with the students' names and ask them to sort them. If the new group finds that some people do not fit, or that one of the categories has no cards in it, you have to refine the categories.

You can also test the categories by presenting a person or group with a pack of cards with each person's name on it and ask that they be sorted into piles of "likeness." When the piles are finished, ask what the people in each pile have in common that makes them different from the people in the other piles. You are hoping that their answers will correspond, roughly, to the categories you got from the interview. This card sort or pile sort technique will be explained further in chapters 11 and 15, along with other techniques suitable for emic research.

Some Issues and Problems

When you are doing emic research, you will find that although people may categorize information in their heads in the ways shown in our sample interview, they are so unused to being interviewed through this seemingly vague sort of questioning that their first answer will probably be, "What do you mean tell you about the girls in this school? What do you want to know?" Also, they are unlikely to announce the categories as clearly as in our interview, particularly when the subject is more complex. You must train yourself to listen for them. Of course, they may not start out by discussing the dimensions of the situation that interest you. They might sort their piles into "people I know versus people I don't know" or "people who owe me money versus people I owe money to." You have to keep at it. If you want social categories, you can point to someone passing in the school, and say, "Tell me about her. How is she different from you? How is she the same?" and steer the interview in the direction of social categories.

Finally, you can ask these questions in a more conversational manner. The interview does not have to sound as rote and mechanical as the sample conversation, which was constructed this way to show the process.

What if people do not agree on the categories? Usually the reason you are using this method is to discover shared idea systems, not individual perceptions. If there is no agreement, perhaps the people you are working with do not see things the same way, which is itself interesting. Or possibly the subject means little to them, and no one has really thought much about it.

Remember, however, that any area of culture consists of multiple perspectives and interpretations. People may agree on categorizations, but attach different meanings to them. Or they may feel that groupings exist, but do not agree on what they are. (We might be safe in guessing that the "loose" girls, even if they agree that such a category exists, may not see themselves in it.)

Also, the categorizations occur in a particular context. If you were discussing some other important issue related to girls with exactly the same people, they would come up with different groupings. Groupings also change over time, as do their meanings and the people or items in them.

So what is this approach good for? Remember, you are using these techniques for a restricted purpose: to get ideas about the way people see things in certain circumstances. For example, people tend to treat other people according to how they perceive them. (This is a version of a famous theory put forward by Park in 1928.) If some girls are refusing to attend school because of the way they are treated, they don't have to agree with the category they have been put into, but they'll still stay at home.

In the etic research approach, you prepared a research design showing the sources and research techniques you hoped to use for each point in your research outline. You have no points in emic research, just general topics you want to explore, so the decisions you make about how to get the information are simpler. You will use emic interviews, card sorts, triads, content analysis, and other techniques discussed in part III.

The type of source—people, records, and so on—can be worked out in advance, but you will probably find that as your research progresses, it will lead you on to other sources in a snowball effect. This leads to the interesting question of how you will know when you have finished, because a snowball can keep rolling and growing. You have finished when the group with which you are working agrees that these categories are real to them: when you go to new people and they can offer nothing that you do not already know, and when you can group people or items or events in the same way as the local people do. Then you understand the principles and there is no point in pursuing the categories further.

Is this information scientific or objective? By now, perhaps you see that this is not the issue. The question is whether this information is useful in helping you to understand what is going on. The teacher's categorizations of "late developers," "gifted children," and "children performing at grade level" are performance categories; the administrators categories of "late fee payers" and "accounts paid" are accounting categories. The ones the girls gave you undoubtedly have more bearing on how they interact with each other.

What will you use it for? In and of itself, it provides you with local insights. You can also combine it with etic research. Before you determine your categories in a research outline, you might want to see what local categorizations exist. Grouping people by tribal group is pointless if it is unimportant to people, whereas whether they are descended from slaves or not is. You can leave part of your research outline blank and explore it through an emic approach: for example, reasons for completing education at Grade 6.

If you are taking an emic approach, you still may need to outline part of your research. If you want to explain the local setting or the school structure and are not doing it emically, you should outline those parts of the research to keep yourself on track.

Chapters 7 and 9–14 will give you more specific help with choosing your information gathering techniques.

OUR GIRLS

At the end of many chapters, you will see a box called "Our Girls." This will show how you can apply what you learned in that chapter to the problem we have been working on here: "Reasons for completing education at Grade 6 among girls in X District in 1995."

FURTHER READINGS TO HELP YOU

Anderson-Levitt, Kathryn, Marianne Block, and Aminata Soumare. 1994. *Inside Classrooms in Guinea: Girls' Experiences.* Washington, D.C.: World Bank.

Hartnett, Teresa, and Ward Heneveld. 1993. *Statistical Indicators of Female Participation in Sub-Saharan Africa.* Technical Note No. 7. Washington, D.C.: World Bank, Africa Technical Department, Human Resources Division.

Miles, Matthew, and Michael Huberman. 1994. *Qualitative Data Analysis*, 2nd ed. Newbury Park, California: Sage.

Spradley, James P., and David W. McCurdy. 1972. *The Cultural Experience.* Chicago: Science Research Associates.

Uphoff, Norman. 1991. "A Field Methodology for Participatory Self-Evaluation." *Community Development Journal* 26(4):271–85.

What this approach is good for: Showing how two or more things are related
Example:
What is the effect of classroom gender bias on girls' achievement?
Does female genital mutilation have an impact on girls' performance in school?
Are girls safer in religious schools?
Sample study:
Abrah, Seged, and others. 1991, "What Factors Shape Girls' Performance? Evidence from Ethiopia." *International Journal of Educational Development* 11(2):107–118.

5

Planning Research that Explains and Predicts

summary

The experimental approach involves another way of planning research. Experiments do not prove or discover. They are, however, good for ruling out possible causes. You may recall that in step 5 (box 3-1) we can use a nonexperimental approach and create a descriptive research statement, or we can use an experimental approach, as we do in this chapter.

***Ex post facto research** means trying to work backward to establish causes after the fact. We use this a lot in daily life.*

*An **intervention** or **treatment** is something you expose your group to: it is the **independent variable** or supposed cause. The **dependent variable** is the effect. The **experimental group** is the group that receives the intervention or treatment. The **control group** is the one that does not.*

***Nonrandomized experiments** can be done on one or more groups. Tests can be given to the group or groups before and after, or only after. Their major feature is that (a) either they involve only one group; or (b) if two or more groups are involved, people are not assigned to them randomly. **Randomized experiments** involve two or more groups to which people are assigned randomly. Tests can be given before and after, or only after.*

*Most explanatory social science research is done through **analytical surveys** using **correlation research** or **quasi-experimental designs**.*

Experimental research is sometimes possible in the social sciences, but meeting the requirements of the most rigorous forms of experiment can be difficult.

Table 5-1 shows some of the strategies that have been used in developing countries to try to improve girls' and women's education. Notice the last column, "insufficient evidence to draw a conclusion." Why do the authors consider that we do not know enough about the effectiveness of using gender-neutral school books or information campaigns?

The reason is that we have few or no proper experiments to tell us whether and under what circumstances these will help girls and women. That is not to say that information campaigns or day care programs for younger children that free girls from baby sitting have not worked well in some places. It is just that we do not have enough information to know why they worked, if they would work elsewhere, or whether something else was happening at the same time that might have been the real cause of improved education for girls. Bellew and King (1993, p. 286) tell us that: "Striving to advance women's education often means proceeding with best guesses, guided by what has worked well under similar circumstances, or by what might theoretically work. Experimentation and careful monitoring are essential."

Table 5-1. Summary of the Effectiveness of Strategies to Improve Girls' and Women's Education, Based on Country Experiences

Objective	*Effective strategies*	*Ineffective strategies*	*Insufficient evidence to draw a conclusion*
Lower the cost of education	Scholarship Culturally appropriate facilities Female teachers Alternative schools Flexible schedules	Free uniforms	Programmed instruction Home production technologies Day care
Raise the benefits of education	Vocational training for growth sectors of the economy when directly linked to employment and strong recruitment	Vocational training for nongrowth sectors of the economy not directly linked to employment and no recruitment effort	Gender-neutral curricula and books School feeding programs Information campaigns

Source: Bellew and King (1993, p.316).

In explanatory or predictive research you may be looking for cause and effect explanations, for example, does malnutrition in children cause impaired motor coordination? You may be looking for some other kind of relationship—correlation, for example—in which you are trying to find out if two variables go together, like income and school attendance. In this case, you are not arguing that income causes school attendance (or vice versa), but you may be hypothesizing that they go together in some patterned way, for example, that people with higher incomes tend to send their children to school. The rest of this chapter looks at how to plan either type of research once you have defined your basic terms. It focuses on experiments. Later in this chapter we will look at testing ideas another way, through the use of surveys.

Whatever you are looking for, you still have to refine your ideas, as you did in steps 3–5 (chapters 3 and 4), because explanatory research demands that you be crystal clear about what you mean by each of the words and concepts you use. For example, if you are looking at whether literacy projects are more successful if they are run by governmental or nongovernmental agencies, you are going to have to define what you mean by literacy, projects, governmental agencies, and nongovernmental agencies. This will allow you to decide how to categorize each project and agency and whether they qualify to be in your study. So make sure you remember how to carry out step 4: Develop a Rough Research Idea and Refine It, before going any further.

Remember also that in the social sciences, explanatory and predictive research does not consist of neat, test tube experiments, but is part of a larger piece of research in which you must describe the setting, context, background, characteristics of the participants and respondents, and so on to the users of your research. The research outline approach in the previous chapter will help you to lay out this descriptive work.

As we said in chapter 3, explanatory and predictive research can be used to clarify, to present reasons, to show relationships, and to show cause and effect. In the social sciences, the most common ways of offering an explanation or prediction are through qualitative research using methods such as those presented in chapters 11–13, through surveys (chapter 9), and through so-called thought experiments (Bernard 1988, pp. 72–73). These are nonexperimental methods.

Experimental methods are not used as frequently in the social sciences for a variety of reasons, such as the inability to meet the requirements of an experiment, ethical considerations, or a desire to study something under real conditions rather than laboratory-like conditions. These reasons will become more obvious later in this chapter.

CAUSE AND EFFECT STUDIES

Some social scientists believe that the social sciences should not try to model themselves on the natural sciences (see, for example, May 1993, pp. 86–87). They argue that the rigid requirements of experiments done in the natural sciences cannot be adapted to the social sciences, and if they are adapted, usually through a meticulous battery of compensating and checking measures, people and their responses get crammed into categories determined by the researcher. Variation, change, and in particular meaning, are lost in the process.

Others argue that the experimental method, whether used on humans or anything else, cannot do what many of its supporters claim it can do anyway (see Cohen 1989, pp. 239–64).

Finally, others recognize some of these problems, but believe that all in all, experiments tell us something that cannot be got at in quite the same way by any other method. A basic introduction to experiments will not equip you to contribute to this debate, but it will enable you to understand what it takes to do experiments, and if you decide to do one, what kinds are possible given your circumstances.

EXPERIMENTAL DESIGNS

The most rigorous, and to some minds the only, way of establishing cause and effect relationships is through the experimental method, in particular, through the most exacting type of experiment, the **classic experiment** or **true experiment**. Before we look at types of experiments, note that:

- Experiments do not prove.
- Experiments do not discover.
- When people say, "I carried out a little experiment," they probably didn't.

If all this is true, what good are experiments? Experimental research does have certain strengths that are more developed than they are in nonexperimental research, namely:

- Experimental research can eliminate or rule out more alternative explanations for something than nonexperimental research can.
- Experimental research can be repeated in other places or situations or with other people more easily than nonexperimental research because of its clear-cut structures and rules.
- Experimental research, again because of its structure and rules, can isolate single factors and examine their associations and effects in a way that is difficult in cluttered real life situations.

We will see what these points mean and raise them again at the end of the chapter.

Ex Post Facto Research: Experiments in Reverse

To begin with let us consider how people usually try to figure out things for themselves. In daily life, people often engage in what is called ex post facto reasoning, that is, concluding that something that occurs before something else must be the cause of it. You put a new roof on the school. Many of the children get sick soon afterward, and people conclude that the roof is making them sick. New, young teachers join the staff, and at the next major examination the children's scores go down. People start saying that older teachers are obviously better. Maybe these things are true and maybe they are not. They cannot be proven under these simple "after, therefore because of" conditions.

Sometimes, an **ex post facto research approach** is the only form readily available to a researcher. You visit a school where the children seem unusually lively and participate actively in class. The teacher does not seem to be doing anything different from teachers in other schools. The only thing that is different is that this school has a radio, and children listen to an instructional program for half an hour every day. We form a **hypothesis,** or a tentative statement, of what causes the phenomenon. We hypothesize that radio programs increase classroom participation. But we are looking at an after-the-fact situation over which we have no control—an experiment in reverse. We did not have a chance to measure the level of classroom activity before the school acquired the radio, and we do not know if other factors may have been at work. Perhaps before the school got the radio the number of lesson hours had been too high, making the children tired, and taking time out for listening has given them time to rest. Maybe the excitement and novelty of the program has energized them. Maybe the children were even more active before they started listening to the radio program: they do not actually like the program, and this has dampened their spirits. In this case we would have to say that radio instruction programs reduce classroom participation. The point is, we do not know enough to draw any conclusions.

Our experience, however, might lead us to design an experiment that would allow us to rule out some of the explanations that occurred to us. We would have to assign children randomly to two groups, perhaps picking their names from a basket and putting them into two piles. By doing it this way, we hope to reduce the chances of all the talkative, active children or all those who had a teacher who encouraged a lot of participation ending up in one group. Then we expose one group to the radio program, observe them before and after the experience, and compare their before and after results with those children who were not exposed to the program. That is a classic or **true** experiment.

In between these two approaches, ex post facto approaches and true experiments, are many other ways of looking at relationships between things. We will divide them into two groups: nonrandomized experimental designs and randomized experimental designs.

Nonrandomized Experimental Designs

Researchers in the social sciences often use nonrandomized experimental designs. The difference between these designs and randomized experimental designs lies, obviously, in the word random. In nonrandomized experiments you cannot assign people to different groups randomly. Often, this is because you cannot control what you think is the cause of whatever you are studying. If, for example, you had a theory that thunder decreases children's concentration in school, you could not arrange for thunder (the supposed cause) and you could not assign children randomly to thunder and nonthunder groups.

Sometimes, you do not want to control what you think is the cause. If you think that severe malnutrition reduces reading comprehension, you are hardly going to set up a situation in which food is plentiful in one place and scarce in another, and assign the children randomly to the two places.

Sometimes, all the requirements that you have to meet to perform a randomized experiment are so strict that you end up creating a totally artificial situation, one that is not very useful because you will never find such conditions in the real world. In these circumstances, a nonrandomized experimental approach might be the one to try.

Box 5-1. The Symbols Used in Experimental Designs

R	means random assignment
O	means an observation, a test, a measurement of some sort. O_1 means the first observation, O_2 the second, and so on
X	means an intervention, a treatment, that is, something done to the experimental group

To read an experimental design:

Experimental group	R	O_1	X	O_2
Control group	R	O_1		O_2
	Random assignment	Pretest	Experimental group gets intervention (X); control group gets none	Post-test

Let us take one project and follow it through all the experimental types. (You can also use a nonrandomized experimental approach in surveys, discussed later in this chapter.)

ONE-SHOT CASE STUDY OR SINGLE GROUP POST-TEST ONLY DESIGN

Perhaps you have a theory that if girls have the chance to use gender-neutral textbooks that show them participating actively in all kinds of events, taking decisions, and showing leadership as often as boys, they will get a lot more out of their education. You have managed to get some books like this for a class, and the girls responded positively. "Using gender-neutral textbooks" is your cause, or **independent variable**, and "increased class participation" is your **dependent variable**, that is, the effect or the phenomenon in which you are interested.

Using the standard symbols for experiments, we can show what you have done:

One-Shot Case Study

X	O

where X stands for exposure to the experimental variable, in this case the new textbooks, and O stands for the observation, measurement, or test that you make afterwards. After they get the textbooks, you are happy to see that the girls are cheerful and confident, but because you did not test the girls before giving them the textbooks, you cannot be sure what effect they have had. For all you know the girls may have been even more cheerful and confident before, and are now a bit overwhelmed by all these new books. Maybe they are truly more cheerful and confident because of some other factor, for example, they were delighted to be treated as a special group with new books. Or perhaps something else was happening at the same time: maybe the harvest was good or the village got a new pump that reduced their work load.

Your boss thinks this is a silly idea. The ordinary textbooks were used when he was a boy, and look what a fine person he turned out to be. His wife used them as well, and can you see anything wrong with her? So what's the fuss? Anyway, it is too expensive to change them on a whim like this. So the thing to do is to improve your experiment.

You are never going to be able to prove that exposure to gender-neutral textbooks makes girls more confident. The idea is too vague to test. The words exposure, gender-neutral textbooks, and more confident need to be translated into concrete, clearly defined terms. Instead, create a hypothesis: when only gender-neutral textbooks are used in the classroom, girls will show more classroom participation.

You will have to clarify to yourself and the reader exactly what you used as gender-neutral textbooks, what you meant by participation, and what constituted more participation. For example, you might take participation to mean "raising a hand to answer a question," or "signing up to participate in a project," or whatever you think is an appropriate measure of participation in the circumstances. If you are going to compare your results with those of a study done elsewhere, you should use the same definition of participation.

Now you hope you will be able to show that with your program, under these conditions, the girls participated more. This is more modest than the hypothesis that "exposure to gender-sensitive textbooks causes greater confidence," but at least it is testable.

Single Group, Pretest–Post-test Design

So you start again. You have a group of girls, and this time you are going to test them first, use the new textbooks, and then test them again. The advantage here is that you will know how much the girls participated before and how much they participated afterwards. The disadvantages, however, are considerable. Let us say the girls participate more. You do not know that the exposure to the books is what produced the increased participation. Perhaps other factors intervened in the time between the first test or observation and the second one: the girls are getting an improved diet, or they got a new teacher whom they wanted to impress, or they just got more confident as they got older, or the shy ones left school.

Or perhaps the post-test shows that the girls did not participate more. Once again, other things may have intervened. Perhaps the most active girls dropped out because their parents decided they were now mature enough to be helpful at home. Or maybe the pretest had some effect on them. Perhaps they saw you counting their participation rates and decided you were taking down their names to report them to the principal.

What you have done is this:

Single Group, Pretest, Post-test

O	X	O

Time Series Design

You can tackle some of the problems by extending the process. Instead of observing or pretesting the girls, using the textbooks, and then observing or post-testing them, you could observe them many times, then use the books, then observe them many times again. If the real explanation for their improvement was that they were just getting older and more confident, rather than benefiting from your program, the improvement would show as a progression that increased gradually each time you did an observation. If you were worried about whether the test itself was causing an effect, it should show up after each observation, not just the one after the program.

Time Series

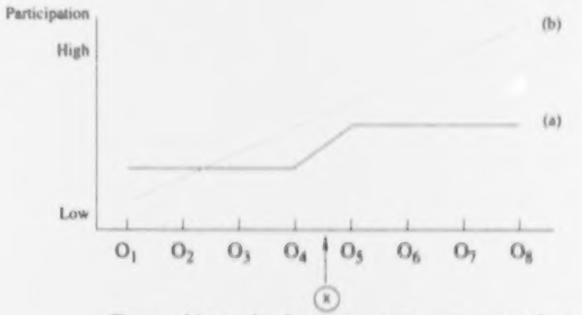
$O_1\ O_2\ O_3\ O_4 \quad X \quad O_5\ O_6\ O_7\ O_8$

What about something else that might be happening at the same time? How can you tell whether it or your program caused a change, if one indeed occurred? If the other event was taking place gradually, it would not explain any marked difference you observed right after your program. If it occurred as a single dramatic event at the same time as your program, separating the two would be more difficult.

A number of variations on the following approach are possible (including using two groups and observing them over time, but giving only one group the program).

Figure 5-1 shows two possible outcomes, one (a) showing that your program had an effect, and one showing that it did not (b). Line (a) indicates that something happened at the point where you introduced your program (X). Line (b) shows that nothing happened at X, but something else was having an impact, because classroom participation rose throughout the period. Perhaps, as we suggested earlier, the girls were gradually getting more confidence as they grew older.

Figure 5-1. Levels of Participation



Temporal intervals when outcome measures were taken, with treatment introduced between O_4 and O_5.

Source: Judd, Smith, and Kidder (1991, p. 115).

Between Subject Designs

Between subject designs refer to experiments in which some of the people involved experience your program and some do not. Later, we will look at **within subject designs**, in which the same people are observed to see how they perform with and without an experimental treatment.

NONEQUIVALENT CONTROL GROUP, PRETEST–POST-TEST DESIGN

One answer to your troubles might be to compare two groups of girls. In that case, you will have to restate your hypothesis, because now you are arguing that girls exposed to the program will participate more in class than girls who are not exposed to the program. You will need to be clear about what you mean by more participation.

You are saying that increased participation is a result of, or dependent upon, using the gender-neutral textbooks. Pretest both groups. If the pretest has some effect, it is likely to be similar for both groups. Give the new textbooks to one group (the experimental group), but not to the other (the control group), and test both groups again afterward. This approach is a slight improvement over the last one, because you have been able to manipulate the independent variable—the program—by giving it or not giving it. You also have a better basis for comparison, the control group, but you still have problems: unknown to you, the two groups may have been very different from the beginning. Perhaps one group had a teacher last year who actively encouraged girls to participate. This approach can be represented as follows:

Nonequivalent Control Group, Pretest-Post-Test

Group 1	O	X	O
Group 2	O		O

STATIC GROUP COMPARISON

Now that you are more sophisticated, you may be worried about the effect of that pretest. It may have alerted the girls to the fact that something is up, and they may be participating more or less depending on what they think you are doing. Sometimes this is a valid concern, and the static group comparison is the only way to avoid it. However, if you drop the pretest, give the program to one group of girls and not the other, and then give them a post-test, you have another problem: maybe the group who were exposed to the program scored lower, even though the program worked, because the control group consisted of particularly active girls who would have scored much higher both before, had you tested them, and after. A diagram of this approach looks like this:

Static Group Comparison Design

Group 1	X	O_1
Group 2		O_1

Randomized Experimental Designs

Your boss is probably fed up by now. You have girls all over the place, new sets of textbooks, old sets of textbooks, tests going on all the time. "What next?" he asks.

Now is not the time to give up. Get a big bowl. Get a new group of girls. Find out all the girls' names, put each name on a piece of paper, mix the papers up in the bowl, and draw them out, one by one, alternately putting them into two piles. Or you could line up the girls, call them forward, toss a coin for each, and according to the results, assign them to one of two groups, heads or tails. (A simpler method is to use a table of random numbers as described in chapter 6).

Gather all the girls whose names are in the first pile of papers into one group, the experimental group, and put the ones whose names are in the second pile into the control group. Use the textbooks with the experimental group and post-test both. You have removed the effect of the pretest, and at the same time you are pretty satisfied that you have two comparable groups. By randomly assigning the girls, you have got around the problem of ending up with one group consisting entirely of teachers' pets or of girls who have taken assertiveness training. (Although, as you can imagine, if you repeated this name drawing process often enough, you could end up with all-of-a-type groups, but this is a chance you are taking.) Here is what you have (remember that R means random assignment):

Randomized Control Group, Post-Test Only

R	Group 1	X	O

Now that you are into the swing of things, you should consider another plan to ensure that the two groups really are comparable: the classic or true experiment. Randomly assign the girls to the two groups as before, pretest them before you give one group the program, and post-test both. The randomizing helps to ensure that the groups are basically equivalent, and the pretest tells us where each group is on the participation scale. This can be shown as follows:

Randomized Control Group, Pretest and Post-Test

R	Group 1	O	X	O
R	Group 2	O		O

Finally, if you want to cover all possibilities—the effects of the pretest, the effects of the program, and the use of random assignment—you can combine the last two types of experiments: get your girls, randomly assign them to four groups, and pretest and give them a program, or not, as follows:

Solomon Four-Group Design

R	Group 1	O_1	X	O_2
R	Group 2	O_1		O_2
R	Group 3		X	O_1
R	Group 4			O_1

CAUSATION

Now that you have your results, you will want to analyze your findings. Chapter 17 explains how to do simple statistical analyses of data. But before you do that, let us look at some important issues: Does your experiment show causation? Many people make the mistake of assuming that because two phenomena go together, one causes the other. For example, single parenthood and poverty tend to go together, but does one cause the other, and if so, which one? Or does something else cause both? To make causal inferences, you have to have the following three things:

- **Co-variation**: co-variation means that two phenomena go together, and when one changes, the other does as well. For example, gender and level of income co-vary in most places in the world: women tend to have lower incomes. To prove causation, you must show co-variation, but that in itself is not enough. We know, for example, that gender does not cause low income, nor does low income cause gender.
- **Nonspuriousness**: if two phenomena go together without one causing the other, both may be caused by a third. If you had concluded that one caused the other, you would have made a spurious assumption. The usual example given here is the association between the number of fire fighters at a blaze and the extent of damage caused by the fire. The greater the number of fire fighters, the more extensive the amount of damage. Are the fire fighters the cause of the damage? No, the size of the fire explains both. (In a twist on this, however, in some parts of New York City in the late 1980s and early 1990s, you could have found a relationship between the number of police officers in a few areas and the number of drug deals and associated violence. In this case, however, it was the police officers—now former police officers—who were making the deals and creating the violence.)
- **Time order**: for one thing to cause another, the cause must occur first. You might think this is obvious, as in the case of an electrical shock causing death. In many cases, however, it is not so clear. In developing countries, does increased participation in girls' education lead to greater economic development, or does greater economic development lead to an increased participation in girls' education?

To deal with these kinds of problems, you need to do three things. First, you have to be able to **compare** the results, either within the same group before and after a treatment, or between two groups, one of which gets a treatment while the other does not. This will help you to see if two things co-vary, in your case, exposure to gender-sensitive textbooks and greater participation in the classroom.

Second, you have to be able to **manipulate** the independent variable, that is, because you are arguing that your textbook program improved participation, you have to be able to set up the program and show that the improvement occurred afterwards. In nonrandomized experiments this can be difficult, and sometimes impossible, to do. For example, you cannot introduce an earthquake to show that natural disasters encourage greater community solidarity. In true experiments, there are instances where you can manipulate the variable, but should not, for example, wrongly telling people that their families have just suffered a bad accident to see how they respond to stress.

Third, you have to be able to **control** the research situation, so that you are ruling out other factors that might explain your findings. For example, if you give your experimental group new textbooks and assertiveness training, you will not know which one caused the improvement in class participation.

If you do not or cannot control the research situation, you will have problems of **internal validity**: you will not know whether your results are caused by your independent variable (your textbook program, in this case) or by something else.

Some **threats**, or **confounds**, to internal validity are as follows (Campbell and Stanley 1966):

1. **History**. This is anything else that happens during the course of the experiment that may affect the results. Let us say that while your girls are using their new textbooks they form a sporting team that wins many prizes. They become more confident, but which, if either, is the cause?
2. **Maturation**. Developmental changes in the research subjects over time may cause the change, regardless of your treatment. People get older and perhaps more conservative, wiser, decrepit, can-

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tankerous, and so on. Let us say a lot of gender-based fighting is going on among children in your local playground, and you decide that ten-year-old boys should be taught to be more aware of the need to cooperate with girls. You set up a five-year training program for them. Don't be surprised if the national press doesn't show up when you announce your results.

3. **Mortality or attrition**. This doesn't necessarily mean that the participants die, although it can. It means that they drop out of the experimental categories, or out of one experimental category and perhaps into another. If there is any patterning to the dropouts, it may affect your research. For example, for years researchers have compared the health of drinkers of alcoholic beverages versus nondrinkers and found that moderate drinkers are healthier. But look at the nondrinkers. They might include former heavy drinkers who are now so unhealthy that they have had to give up drinking altogether.
4. **Regression to the mean**. You may want to include a wide range of students in your study, so you look at their last examination marks and take some who scored very high and some who scored very low. You pretest them. But you may have caught the high performers when they were at their absolute best, while the poor ones were at an all-time low. Later, they move toward their **mean** or more average position. When you post-tested them after your program, their results were certainly different. Is it your program, or were they just reverting to normal? Sometimes, individuals at are such extremes that there is nowhere else for them to go but up or down on the post-test: programs aimed at the poorest of the poor may seem to improve their lot, but perhaps they would have improved without the program, because they could not get any poorer.
5. **Selection interactions**. How you select the participants may interact with some of the other problems listed above and affect your results. For example, selection and history can interact. Let us say you develop a program to encourage people to participate more in community organizations, but during the course of the research, the community from which you have drawn the experimental group loses funding for many of its organizations. When you discover a decrease in participation in the experimental group after your program, you could conclude, perhaps wrongly, that the program is not very good. Selection and maturation can also interact in that one group of participants may change at a different rate than another. For example, children ten to fifteen years old change more, physically and socially, than adults thirty to thirty-five years old.
6. **Testing**. People (and other animals) can be affected by tests. They can learn to perform better on them just by doing them, they can figure out what you are looking for, they can get bored, and so on. Changes that you see in the post-test may be a result of these factors.
7. **Instrumentation**. This is a bit like changing the goal posts during the game. When you pretest and post-test, the tests or measures have to be the same and must be administered the same way under the same conditions. If you had higher standards for "classroom participation" in your pretest and lower ones in your post-test, your program would probably show some improvement in classroom participation, but it would not tell you anything useful about the program's effects. Or if someone is helping you and administers the tests in a different way, that too would confound the results.
8. **Diffusion of treatment**. This occurs when your program "leaks." People in the control group discover, one way or another, that you are testing to see whether drinking eight glasses of water a day gives one a lovely complexion. They would like lovely complexions too, and they start drinking a lot of water. Now you have two damp groups, all beautifully radiant perhaps, but no experiment.

You can probably see by now that pre-experimental approaches are far less successful at handling these problems than true experiments are, largely because they do not have a randomly-assigned control group. For this reason, using pre-experimental approaches to show causation is extremely difficult. Table 5-2 shows the confounds associated with some of the approaches, arranged here from "weakest" to "strongest."

Table 5-2. Experimental Designs and Some Associated Confounds

Type of experimental approach	*Selection*	*Testing: e.g., 6*	*Extraneous variables: e.g., 1,2,3,4*	*Interaction effects, involving selection: e.g., 1,2,3,4,5*
Pretest-post-test O X O		–	–	–
Static group comparison X O O	–	+	+[a]	–
Nonequivalent control group O X O O O	+	+	+[a]	–
Randomized control group R O X O R O O	+	+	+	+

Note: A minus indicates a weakness in regard to the confound. A plus indicates that the design is resistant to the confound. A blank indicates that the confound is not applicable to the design.

[a] The static group and nonequivalent control group designs are resistant to the effects of extraneous variables to the extent that these variables affect both groups in the same manner.

Source: Adapted from Brim and Spain (1974, p. 18).

How can you try to get around these confounds? One way that researchers use, particularly when dealing with small numbers, is **matching** the research subjects, so that for important characteristics, the participants in both groups are more alike. In pair matching, for every teenaged, female, high school dropout in the experimental group, you will have someone with the same characteristics in the control group. However, if you have a lot of factors to control for, you may not find them all neatly packaged in pairs of people. An alternative is to ensure that the important characteristics are present in both groups, but separately, at a group rather than at the individual level. Thus, the *average* age of both groups, level of education, and sex ratio might be the same. An obvious problem with matching is that you might not be able to determine all the relevant characteristics that could have a bearing on your problem. (For an extended discussion of a more complex problem associated with matching when you are not assigning your subjects randomly to the two groups, see Judd, Smith, and Kidder 1991, pp. 118–23.)

The other precaution you can take is random assignment, which helps to get around the problem of not being able to identify all the relevant factors in advance. You did this when you assigned your girls randomly to the two groups to avoid having two groups of girls with two very different sets of characteristics. Suppose you found that the experimental group did participate more in class, and then your boss points out that they were all in a single-sex school while the treatment group was in a mixed-sex school. What could you say? (Of course, if you didn't notice something odd about this particular situation to begin with, perhaps you should lie down for a bit.)

You can also combine pair matching with random assignment. Pair your participants on whatever characteristic you think is important—you might pair your girls by ethnic group—then toss a coin for each pair. The girl who gets heads goes into group 1, the other goes into group 2.

These are not the only threats to validity. Some arise with the researcher, for example, a researcher could affect the results by influencing the subjects in the direction desired, selecting only the experimental results that supported the hypothesis, or interpreting the results in a direction that favored it. Most researchers are ethical, but these threats may occur without the researcher even being aware of it. For example, in a number of studies when researchers doing laboratory experiments were told that their laboratory animals were genetically superior or inferior (when in fact both groups of animals were identical), the animals performed well or poorly according to the researchers' expectations, because unconsciously the researchers treated them differently.

Other threats arise with the subjects. People may not behave as they normally do if the conditions of the experiment are different from their ordinary experience. Or they may figure out or think they have figured out what the research is about, and therefore try to do the "right" thing. People unconsciously behaving in special ways because they know they are involved in an experiment is called the Hawthorne Effect from a series of experiments in the 1920s and 1930s in which this happened.

When you have dealt with all these problems, you still have one more: **external validity**. Can your results be said to be true for other girls who were not in your study? Most researchers are not interested just in the groups they studied. They want to be able to generalize the results to a larger setting. In this context you have three issues to deal with: how representative your group is of the larger population (all girls in your country perhaps), whether your study's results will be mirrored in the larger population, and how artificial your experimental conditions were.

Representativeness

If you were trying to find out whether a vocational training program to provide girls with nontraditional skills leads to an increase in female automobile mechanics, would you be happy to learn later on that all the girls you studied came from a little-known religious group that regards the car as the work of the devil? Or if you wanted to know which of two programs is more likely to encourage people to help the police, and all your participants turn out to be currently active burglars? Your experiment might have high internal validity—the results would be true for the group you studied—but they would not have much general application.

Mirroring the Larger Population

The issue of whether your results will be mirrored in the larger population is related to representativeness. Let us say that you find that your textbook program increases classroom participation among all but 5 percent of your girls. Does that mean it will work on all but 5 percent of girls generally? Most experiments are not drawn on random samples of the entire population, and therefore there is no way to know the extent to which the experiment will work in the larger group. Basing an experiment on a random sample of the entire population is possible (see chapter 6), but as the aim of most experiments is to show cause and effect or some other kind of relationship, this is not always a priority.

Artificiality

A third problem is that the more carefully you control your study, the more likely you are to be moving away from real life conditions, and therefore the less likely you are to have external validity. Are ordinary teachers going to use a complete set of gender-sensitive textbooks and nothing else as you did in each experiment? If not, will they have the same results?

You have to balance internal validity (true for the experiment) and external validity (true for situations outside the experiment). Of course, if your research has no internal validity, there is no point in worrying about generalizing the results to larger situations. If, however, it is impeccably designed, but meaningless in the real world, that is not much use either. In the practical world, there may be a case for sacrificing some internal validity for external relevance. You may not get published in a scientific journal, but you may be able to get some sense of what works in a real situation.

Within Subject Designs

So far in our experiments involving two groups we have looked at between subject differences, that is, some girls got the textbook program and others did not, and you looked at the differences between the two groups. But you might want to try two different programs on one group. This is **within subject differences**. Maybe you are a teacher and have only one class of children to work with. Breaking them up into two groups is not practical, because you are trying to teach them. But you are interested in learning incentives, and you want to know whether they do their mathematics homework better if you draw a happy face on their work sheet. One day you give a work sheet with a happy face, the next day you do not.

However, other factors might intervene: *you* might not have a happy face on one of the days, and that might affect the results. Because you cannot assign the students randomly to a treatment and a control group, you could instead give each student a number and assign them all randomly to two groups. On the first day, give one group the happy face papers and the other the plain ones; the next day, reverse the process with the two groups. That way, even if you looked a bit stern on one of the days, both groups would be equally affected, presumably, and the results of both groups would reflect it. Even if you can manage to control your facial expressions, something else might intervene, like noise or thunderstorms, and this is a good way to ensure that both groups share exposure to the same variables. This approach is also useful when you have small numbers. If you have five or more people in each of the four categories, for a total of twenty people, you can analyze the results statistically.

Within subject experiments can be either randomized or nonrandomized experiments. However, the approach has its limitations, just as between subjects approaches do (remember the earthquake variable that you could not manipulate?). Common sense will tell you sometimes: for example, if the treatment has a continuing effect. Let us say you taught your class something one day to see if it had any effect, and did not teach them the next day, then they would still retain the knowledge they acquired the day before. This is called a **sequencing effect**. Or if you wanted to see whether the happy faces worked better with boys or girls, you would have to do a between subjects experiment, because you could not change the students' sex.

In all our examples, we have only used two groups, but we can use more. Suppose, instead of looking at the effect of your textbook program (the independent variable) on classroom participation (the dependent variable), you were trying to find out whether the age of the girl (the independent variable) affected the success of the textbook program (now the dependent variable), and you had four age groups to work with: they become Groups 1, 2, 3, and 4. (You no longer have textbook and no textbook groups, because you are not examining the effect of the textbooks, but rather the effect of age.)

This example raises another point: when the textbook program was your independent variable, you could manipulate it, that is, give it to some girls and not to others. When we start talking about age, however, we cannot manipulate: one is fifteen or one is not. The same is true of gender, for example, or race, or height. These are subject variables, which cannot be manipulated and cannot be used in within subject experiments.

Also, all our examples have involved only one kind of treatment or independent variable. Experiments that involve two or more independent variables are called **factorial** designs. Suppose that after all this, your boss said that because you had been giving each of the girls in your experiment a vitamin every day, they were generally more alert, and that had a big impact on their classroom participation. You could perform two separate sets of experiments, following one of the designs described above: one in which you did what you have already done, that is, give two groups of girls textbooks/no textbooks, and another experiment in which two groups got vitamins/no vitamins, and compare the results. Another way, however, would be to create one experiment, with all the possibilities included:

Factor X: textbooks	Factor Y: vitamins	
	Vitamins	No vitamins
Textbooks		
No textbooks		

By assigning your girls randomly to each of the four groups, you can see whether girls with no vitamins and textbooks were as active as girls who had vitamins and textbooks. This is called a two-by-two design, but you can have more levels of the variables, creating, for example, three-by-two designs.

The analysis and interpretation of factorial designs is more complicated than that for single variable designs: more outcomes are possible and chances for threats to validity to occur increase.

CHOOSING YOUR EXPERIMENTAL DESIGN

How do you decide which kind of experiment to use? Figure 5-2 summarizes the issues involved.

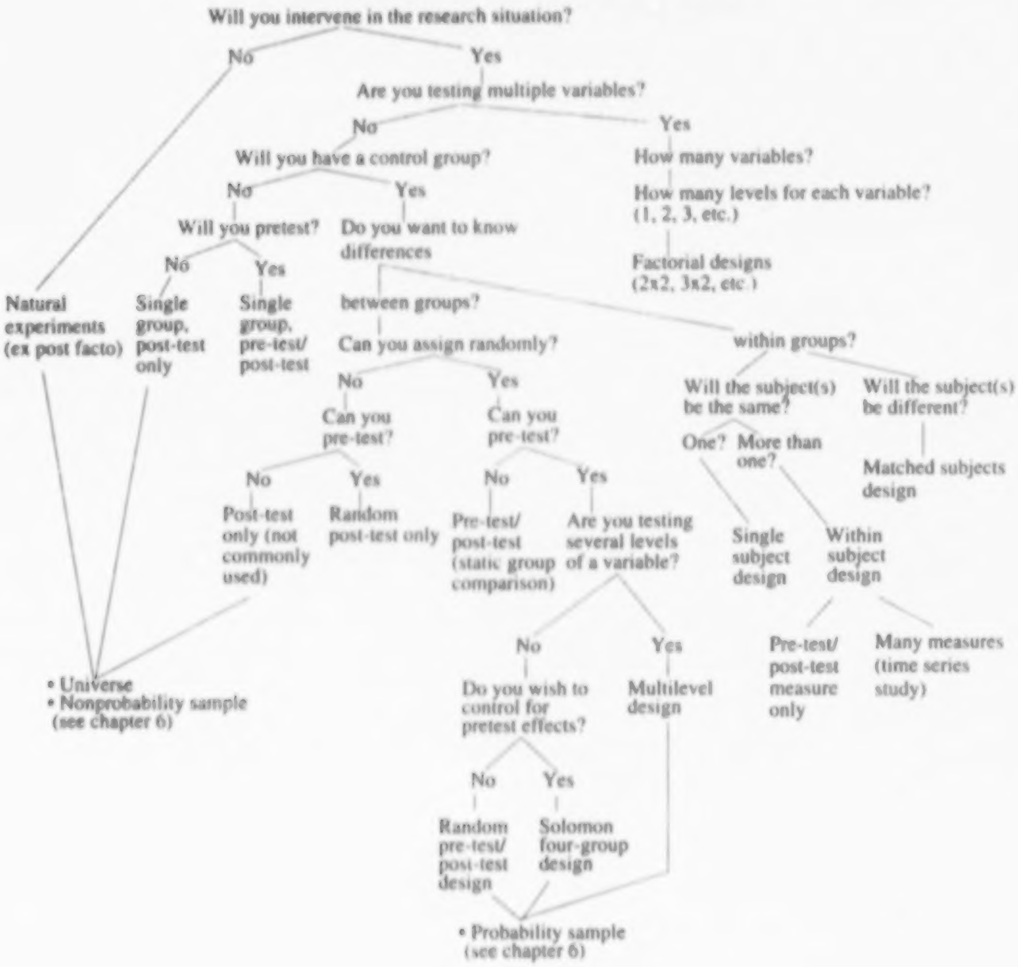
WHAT EXPERIMENTS DO AND DO NOT DO

Now we come back to some of the statements made at the beginning of the chapter: experiments do not discover or prove theories or hypotheses. Think of it this way: a boxer cannot prove he is the best in the world. All he can do is refute the claims of others that they are better, and until he is proven wrong, we are more or less content with calling him the world champion. Something of the sort is true for the claims we make for our experiments, but experiments are very good for refuting claims or ruling out alternative explanations.

Notice that we did not attempt to prove the theory that using gender-sensitive textbooks increases girls' classroom participation, because to do so we would have to examine all girls and all kinds of gender-sensitive textbooks everywhere, past, present, and future. A theory is usually a very general, broad statement. In creating our hypothesis, and therefore making our idea testable, that your new program will increase participationamong the girls you studied, you have already limited the scope of your idea considerably. You cannot then leap back to the general theory and argue that you have proved it. (This is called **induction**—proving the general from the particular.) But we have not even proved our hypothesis. Despite all the precautions we may take, our research may contain errors or be biased. The most our hypothesis can do is to withstand disproof by someone.

Experiments don't disprove theories either. Any theory can be converted into a vast number of different hypotheses. You have tested only one quite specific version of the theory. If you say that your experiment has proven the theory, it is like saying that because you have a tiny piece of elephant hide, you have an elephant. And if you find that you cannot support your hypothesis, you will not know why; experiments do not tell you that. All you know is that for some reason, it did not work the way you expected. Any part of the process—the way you defined classroom participation, for example, or the selection of the groups—may have affected the results. The theory may still be true.

Figure 5-2. Experimental Design Decision Tree


Will you intervene in the research situation?
No
Yes
Are you testing multiple variables?
No
Yes
Will you have a control group?
How many variables?
How many levels for each variable? (1, 2, 3, etc.)
Factorial designs (2x2, 3x2, etc.)
No
Yes
Will you pretest?
Do you want to know differences
No
Yes
Natural experiments (ex post facto)
Single group, post-test only
Single group, pre-test/ post-test
between groups?
Can you assign randomly?
within groups?
Will the subject(s) be the same?
Will the subject(s) be different?
One?
More than one?
Matched subjects design
No
Yes
Can you pre-test?
Can you pre-test?
No
Yes
No
Yes
Post-test only (not commonly used)
Random post-test only
Pre-test/ post-test (static group comparison)
Are you testing several levels of a variable?
Single subject design
Within subject design
No
Yes
Pre-test/ post-test measure only
Many measures (time series study)
• Universe
• Nonprobability sample (see chapter 6)
Do you wish to control for pretest effects?
Multilevel design
No
Yes
Random pre-test/ post-test design
Solomon four-group design
• Probability sample (see chapter 6)

Maybe you do not care about theories, you are only worried about the one situation you are studying. Have you shown that your textbook program increased girls' classroom participation? To answer that you have to satisfy yourself that you have tested all possible alternative explanations for what you found and ruled them out, which, in practice, is impossible. Could it be that just giving girls more attention accounts for the difference?

Finally, experiments as such do not discover things. Discovery is an inductive process, in which something is found in one instance that turns out to be true in all cases. Experimental research is deductive, proceeding from the general (the theory) to the particular (the hypothesis). In this respect, we might say that experiments are "rigged," from the beginning: certain conditions, certain circumstances, certain procedures are specified, and the outcome we expect happens or does not happen. This is not the same as discovery.

Theories deal with cause and effect, but actual research can only show that two or more things go together and that one comes before the other. No matter what precautions you take, an experiment is a simplified practical version of the theory. It contains a lot of assumptions and articles of faith, for example, that the threats to validity have been controlled, and that randomization has had the desired effect, that is, you have not ended up with a group of royal princesses who are used to speaking in public and a group of girls who all have laryngitis. The chances of this happening are small, but they exist.

So what experiments do is support theories or claims, and through repeated application by other researchers, give us more confidence in our line of thinking and suggest new ideas to be examined.

SURVEY DESIGNS

Surveys, whether in the form of questionnaires or structured interviews (see chapter 9), can take two forms: descriptive surveys, in which the aim is simply to present a picture, and analytical surveys, in which you are trying to show correlation between two things, such as mothers' level of education and the decision to send daughters to school.

Correlational research cannot be used to show cause and effect relationships. It shows that two things, A and B, go together. The possibilities for causation seem to be simple: A causes B, B causes A, or something else (C) causes both. Surely common sense should be able to help you. But consider this example from research experts Graziano and Raulin (1993). You find that students' reading abilities and mathematics abilities go together. Does one cause the other? It is unlikely that high mathematics ability causes high reading ability, but it might be that high reading ability causes high mathematics ability, because reading development occurs first, and students learn some of their mathematics through reading. You can ask a student:

> John goes to the market and buys five tomatoes. If the tomatoes sell for $3 per dozen, how much change should John receive if he gives the clerk a $5 bill?

This question will measure simple arithmetic, but it also measures something else. Look at this question:

> Jean va au marché et achete cinq tomates. Si les tomates coutent $3 la douzaine, combien de monnaie Jean doit-il recevoir s'il donne la vendeuse $5?

This is the same question: if you do not know French well, it is more difficult to answer, yet the arithmetic skills involved are the same as in the English question. The lesson is that reading skills are required to perform well on most tests; therefore, you would find a high correlation between readings skills and most other abilities (Graziano and Raulin 1993, pp. 155–56).

A final consideration is that something else causes both A and B, but what? It could be any one of thousands of things, none of which may have been examined in your study.

Despite these comments, analytical surveys are useful for showing correlations, as the following "experiment" shows (adapted from Cole 1980, pp. 31–41). Suppose we did a survey of a sample of 1,000 parents of girls who had just successfully completed the Primary Leaving Certificate. The survey covered urban and rural parents of all ages, some with secondary education and some with less. Half of the parents were Ndebele and half were Shona.

In our survey, one of the things we asked was: "Do you intend to send your daughter to secondary school?" When we looked at the replies, we were surprised to find quite a difference between the Ndebele and the Shona (table 5-3).

Table 5-3. Percentage of Parents Who Intend to Send their Daughters to Secondary School by Ethnicity

Ethnicity	*Percentage of respondents intending to send daughters to secondary school*	*Number of respondents*
Shona	72	500
Ndebele	48	500

That is, 72 percent of the 500 Shona and 48 percent of the 500 Ndebele intended to send their daughters to secondary school.

Notice the way the table is laid out. You put the independent variable as the first column and the dependent variable across the top, so that the table shows the percentage of the independent variable that is reflected in the dependent variable. In this case, ethnicity is seen as the independent variable: ethnicity "determines" people's intentions to send their daughters to school. It is unlikely that you will try to argue that intentions about sending people's daughters to school determine the ethnic group to which they belong. This is not just fussiness. The figures will be different if you do the table the other way around:

Intention to send daughters to school	*Percentage who are Shona*	*Number of respondents*
Yes	60	600
No	35	400

So throughout this exercise, you must be certain that your tables are correctly laid out.

Back to our survey. We also found that

- More younger parents said yes.
- More people who lived within three kilometers of a school said yes.
- More parents with a secondary education said yes.

We can simply report what we found (description), or we can try to figure out why we found what we did. Why, for example, would more Shona people say yes? Is there something in the Shona tradition that places more value on education? If that is the case, we should try to find out more about the tradition and see if similar ideas can be encouraged in other groups. But let us say we know the Shona and the Ndebele people well, and they both place a high value on education of girls. So it is not "Shona-ness," it is something associated with being a Shona, but what? Maybe more of them have a secondary education, and we know from the literature on girls' education that parents with a secondary education are more likely to send their girls to school. But when we sort our Shonas and Ndebeles by level of education, we find the results shown in table 5-4.

Table 5-4. Percentage of Parents with a Secondary Education by Ethnicity

Ethnicity	*Percentage of parents with a secondary education*	*Number of respondents*
Shona	50	500
Ndebele	50	500

Thus we see that it cannot be that more Shona said yes because more had secondary education.

So we consider age, thinking that younger parents are more progressive, but when we sort the groups by ethnicity and by age, we find they look more or less like the table above.

We can look at the literature on girls' education to come up with possible explanations. One of the strategies that has been used to improve girls' participation in education is to locate schools closer to home to safeguard girls' security. Let us form a hypothesis: Shona are more likely to say they are going to send their girls to secondary school because they live in areas where schools are closer to their homes, and people who have schools close to home are more likely to send their daughters to school.

We have to find information in our survey to support four statements:

1. Shona are more likely than Ndebele to say they will send their daughters to secondary school.
2. Shona are more likely to have schools closer to their homes.
3. People who live closer to schools are more likely to send their daughters to school.
4. Shona are more likely to say they will send their daughters to school because they live closer to schools.

We have already showed in table 5-3 that statement 1 is correct. Now we need to look at statement 2. We sort our two groups by closeness to school (table 5-5), and find that more Shona than Ndebele do indeed live close to a school.

Table 5-5. Percentage of Parents Living Close to a School by Ethnicity

Ethnicity	*Percentage living close to a school*	*Number of respondents*
Shona	85	500
Ndebele	40	500

For statement 3, we need to do a different kind of sorting: of the people who are living close to schools, how many intend to send their daughters (table 5-6)?

Table 5-6. Parents Intending to Send Their Daughters to Secondary School by Distance from School

Closeness to school	Percentage intending to send daughters	Number of respondents
Less than three kilometers	80.0	625
Three kilometers or more	26.7	375

Thus, of the 625 people who live less than three kilometers from a school, 80.0 percent intended to send their daughters, and of the 375 who lived three kilometers or more from a school, 26.7 percent intended to send their daughters.

The last statement, that Shona are more likely to say they will send their daughters to school because they live closer to schools, is not based on any grand theory, although the last proposition in a set of statements like this often is. In our case, it may be simply a historical fact that Shona lived closer to main roads to facilitate trading, and that so far the school building program has been concentrated along main roads. We look at our two groups, and pick out the people who are intending to send their daughters to school. How many of these live less than three kilometers from a school and how many live three kilometers or more from a school? Notice that you are now dealing with three variables: ethnicity, intention to send daughters to school, and distance from school, all in one table (table 5-7).

Table 5-7. Percentage of Parents Intending to Send Their Daughters to School by Ethnicity and Distance from School

	Percentage intending to send daughters to school	
Ethnicity	*Less than three kilometers*	*Three kilometers or more*
Shona	80 (425)	26.7 (75)
Ndebele	80 (200)	26.7 (300)

Note: The figures in parentheses show the number of respondents.

Thus, 80 percent of the 425 Shona who live less than three kilometers from a school and 80 percent of the 200 Ndebele (340 + 160) who live less than three kilometers from a school intend to send their daughters to school, while 26.7 percent of the 75 Shona who live more than three kilometers from a school and 26.7 percent of the 300 Ndebele (20 + 80) who live more than three kilometers from a school intend to send their daughters to school. Clearly the deciding factor is not "Shonaness" or "Ndebeleness," but proximity to a secondary school.

This is the process we have followed:

> We find an independent variable that is associated with the dependent variable; we then find a test factor that might explain the relationship between the dependent and independent variables. To see if we have found the correct test factor, we examine the relationship between the independent and dependent variables, which remain constant throughout one analysis, separately within each category of the test factor. If the test factor is the right one, the percentage difference should be less in each category than it was in the original two-way table (Cole 1980, p. 41).

In our case, in table 5-3, the percentage difference between Shona and Ndebele is twenty points, and in table 5-7 the percentage difference between them in each category of the test factor is zero. In real life for you to get a finding as neat as a zero difference is unlikely. If the difference was large, you would start looking for something else as an explanation, but if it was small, although greater than zero, could you be happy with your results? Look at the section on statistical significance in chapter 17.

To do research of this sort, your survey has to be comprehensive enough to include questions covering the likely factors, but the possibility still exists that some other factor not covered in your survey explains the findings just as well as distance from school. What you have done here, as you would with an experiment, is to rule out factors, not prove.

FURTHER READINGS TO HELP YOU

Abraha, Seged, and others. 1991. "What Factors Shape Girls' Performance? Evidence from Ethiopia." *International Journal of Educational Development* 11(2):107–118.

Bernard, Russell. 1994. *Research Methods in Cultural Anthropology.* Newbury Park, California: Sage.

Cole, Stephen. 1980. *The Sociological Method: An Introduction to the Science of Sociology,* 3rd ed. Chicago: Rand McNally.

Graziano, Anthony H., and Michael L. Raulin. 1993. *Research Methods: A Process of Inquiry,* 2nd ed. New York: Harper Collins.

Judd, Charles M., Eliot R. Smith, and Louise H. Kidder. 1991. *Research Methods in Social Relations,* 6th ed. Fort Worth, Texas: Holt, Rinehart and Winston.

6

Whom Will You Study?

summary

Some of the words in this chapter have popular as well as statistical meanings: population, universe, sample, random. The statistical meanings are the ones that matter here.

You can study the ***population*** *or* ***universe****, that is, all the people or items in a group, or you can take a* ***sample*** *and study some of them.*

Sampling can be divided into two types. In ***probability sampling*** *everyone has a chance of being selected, but in* ***nonprobability sampling*** *some people have no opportunity to be included.*

In a probability sample, in a ***random sample****, everyone has an equal chance of being selected. In a* ***stratified random sample****, you can make certain that subgroups you think are important are not left out. You can use* ***cluster sampling*** *when you cannot get a list of people to choose from.*

You use nonprobability samples when you cannot meet the conditions of probability sampling or when you do not need to. ***Purposeful sampling*** *means deliberately choosing people because they have some characteristic that interests you.* ***Quota sampling****, while not a probability sample, is like stratified random sampling in that it allows you to make certain that groups you think are important are not omitted.*

Sample size *is determined by a specific formula rather than by choosing an absolute number or by taking a proportion of the population.*

This chapter gives you more help with step 7: making decisions about sources of information. Are you going to study everyone within the group that interests you or only some of them? How do you decide? If the answer is only some of them, how do you choose which ones?

When you study an entire group, whether the study is of the attitudes of all distance education teachers in Lesotho, of gender sensitivity in all textbooks used in the secondary school curriculum in Mali, or of all schools in The Gambia that have school gardens, you are studying the **population** or **universe,** that is, all of whatever there is. So if the number of people or items studied is sufficiently small and accessible that you can question or examine all of them, you are taking a **census** rather than a **sample**.

When you study the characteristics of only some of the people, situations, or items within the group, you are taking a sample. Sampling has been used to provide some of the major sources of development-related information, such as the World Fertility Survey, the Social Dimensions of Adjustment Survey, and the Indian National Sample Survey.

The words population, universe, census, and sample can be confusing, because they have popular as well as statistical meanings. We think of populations as large and samples as small, but populations can be small, for example, if you want to study only your third grade class, all the children in it form a population, even though the class might only consist of thirty children. A sample, by contrast, can be large. A national sample of third grade children could include hundreds or thousands of children.

Samples have a number of advantages. Studying the entire group may take too long and cost too much, both in money and in opportunity time. In an entire region, for example, by the time you asked every woman with children under five whether she would use a day care system and what kind of system, those particular children under five might be too old to use it.

Obviously, you want your sample results to be similar to those you would have got by studying the entire group, if the entire group is what you are interested in. You cannot ensure that it reflects the population unless you carry out an identical study of the entire group. However, you can develop a sampling plan that enables you to say that your finding will not be different from the universe figures by more than, for example, 2 percent (this is called **the margin of error**) more than 99 percent of the time (this is called the **probability** or **confidence level**.) Both of these must be set before you can determine your sample size, although these are not the only factors to be taken into account (see Fowler 1988, p. 41 for further discussion).

PROBABILITY SAMPLING

If you want to be able to specify the margin of error and the confidence level, that is, if you want to be able to say how close your results would be to those obtained from the entire group, you must use a **probability sample,** which is one in which it is possible to specify for each member of the universe the probability of being selected. This probability need not necessarily be equal. It just needs to be known. Such a sample, if properly drawn and not invalidated by nonsampling errors, allows you to extend or generalize your results to a larger group without studying the entire group. Nonsampling errors are mistakes that have nothing to do with how you took your sample. Some common nonsampling errors occur when a researcher asks ill-conceived questions or records the answers wrongly, or when two researchers administer the same questionnaire in different ways. We will look at this again later.

Three basic types of sampling fall into the category of probability sampling: **random, stratified,** and **cluster**.

Simple Random Sampling

Simple random sampling is useful when you have a homogeneous population, that is, the members are similar in terms of the characteristics that interest you, such as level of education.

In this kind of sample, each member of the universe has an equal chance of being selected. For example, 200 children are participating in a school feeding program and you want to study the school performance of 50 of them. You can put the 200 names on individual slips of paper, put them in a big bowl or box, and draw out 50. However, a more common approach these days is to give each of the 200 children a number. Then get a table of random numbers, which can be found in many statistics textbooks or which can be computer generated, and which will look like table 6-1.

Believe it or not, these are not real random numbers. I just made them up for this chapter. Strange as it may seem, however, you cannot make up your own random numbers. You must use a proper table constructed by people who make their living at this sort of thing. This has nothing to do with union rules. If you make up your own numbers, they will reflect your weakness for certain numbers and your dislike of others.

To use a table of random numbers, find a point of entry into the chart using two numbers, say the first two numbers on a piece of paper money, or the last two numbers of the first listing from a telephone directory

Table 6-1. Example of Part of a Table of Random Numbers

			1					2			3 (etc.)
	29	64	73	52	18	11	89	42	67	09	
	13	49	30	16	54	43	39	80	57	13	
1	89	63	27	04	49	02	69	05	99	10	
	00	89	76	91	02	96	10	49	36	24	
	16	84	06	19	41	17	83	42	08	83	
											(chart continues across for a total of 10 blocks)
	63	79	41	97	33	62	40	82	59	12	→
	21	45	93	89	40	22	95	80	06	54	
2	39	81	66	02	17	75	47	03	53	00	
	46	71	11	50	06	59	27	18	09	35	
	09	77	30	49	99	14	52	02	40	15	
3 (etc.)						(chart continues down for a total of ten blocks)					↓

opened at random, or the first or last two numbers from an automobile registration number. Let us say the numbers are one and two. Flip a coin to see which will be your first number. Let us say that it is two. Go to the second block across, in the first row (block 2, row 1).

Take the first three digits in the first line of block 2.1. (Three because your universe number has three digits. If your universe was 10,000, you would take the first five digits.) The first three digits are 118, so select the person who is numbered 118 on your list. The number below is 433, but you do not have a slip numbered 433 as yours only go up to 200, so you move on to the first three digits of the next number, 026. In the fourth line you have no number 961, so skip it and move on to the next line for number 178. If you should come across the same number twice, skip it after you have selected the slip the first time. When you get fifty slips, stop. There will be fifty numbers in a column. If you run out, continue upward from your starting block. Then move to the next column if you need more.

It is obvious from this that statisticians who specialize in sampling mean business if they are this fussy before you even begin. It is also obvious that you have to get a list of children who are in the school feeding program before you can number them. This list is called a **sampling frame**. In many instances, no such frame exists, in which case this method cannot be used. Notice that this whole procedure is somewhat different from what most people think of as a random sample. Two friends of your mother, a few women from the credit union, and a group of schoolgirls waiting for a bus do not constitute a random sample, or if they do, it would be difficult to say of what.

A variation of a simple random sample is a **systematic random sample** in which you decide your sample size, say 120 in a population of 600. Divide 600 by 120 to get 5, choose any number between 1 and 5 to get the first number in your sample, then choose every fifth number after that until you have selected 120. Problems arise if there is a patterning to the sampling frame. If it contains, for example, a list arranged in order with every fifth person on a list of students being a prefect, you could end up with a sample consisting entirely of prefects.

Stratified Random Sampling

If your population varies—let us say some have a primary education, some have been to middle school, and some have attended high school—and you want to be sure people from each group appear in your sample, we would divide them into the three groups first. Then, numbering the members of each group separately, choose a random sample of each before combining them again to study them. This way, all three groups will be certain to be in the study. This works if the groups are of roughly equal size.

What if they are not of equal size? Suppose you want to find out about attitudes toward girls' education among 1,000 parents in an urban area who come from a variety of ethnic groups. Perhaps you suspect that attitudes vary by ethnicity, and you want to be sure to have people from each group in your sample. You are drawing a sample of 200, and there are only 60 members of the Twi ethnic group and 40 Ga among the 1,000 parents. Your simple random sample might not turn out to be representative of all the ethnic groups in the area, for example, it might contain no Twi or Ga at all.

To ensure that this does not happen, divide your sampling frame into ethnic categories, then work out the percentage of the total that each ethnic group forms (6 percent are Twi, 4 percent are Ga), and draw a random sample from each category that reflects its proportion in the population. So your sample of 200 will include 6 percent, or twelve, Twi (6 percent x 200)and 10 percent, or eight, Ga. This is **proportionate stratified random sampling**. Stratified sampling can reduce the costs of sampling considerably. If you wanted to ensure that a simple random sample contained two Ga (or perhaps a disproportionate number, to make a meaningful comparison), you would have to increase the sample size substantially, and would end up with many more people than you wished to have in the other categories just to obtain the desired number of Ga (see Fowler 1988, pp. 24–26, for more discussion of this).

Cluster or Area Sampling

Even if you had all the money and time in the world, you might not be able to take a probability sample either because a sampling frame does not exist or is flawed. Imagine using the telephone directory for your country as a sampling frame. Who would have no chance to be included in your study? Sometimes, no list of any kind is available: good teachers, market girls in a big city, teenage girls with children.

A third kind of random sampling, which helps to deal with this problem, is cluster or area sampling, which is the least expensive type of sampling for large studies, but also tends to be less precise. It is useful when you are attempting to study something for which no sampling frame is available at the highest level from which you wish to sample. For example, perhaps you are studying women taking formal and nonformal technical programs in a region and have no list of their names. In such a case, proceed as follows:

- Divide the region into parts such as provinces, territories, or whatever kind of unit is appropriate. Number the provinces and take a random sample of them.
- Subdivide the provinces into, for example, educational districts. Number them and take a random sample of these districts.
- Find the courses or institutions relevant to your study within the selected districts. If there are many, number them and take a random sample. Go to those that have been selected and study the entire institution, or get the enrollment lists and draw a random sample from them. You may have more or fewer stages than this, but the advantage is that you now have a random sample without ever having had a list of all women taking courses in the region. The disadvantage is that the selected clusters are usually more homogeneous and less representative of their fellow clusters than one might wish.

NONPROBABILITY SAMPLING

When you use nonprobability sampling, some people will have a higher chance than others of being included in your study. For example, you decide to talk to a sample of local schoolgirls at the end of a school day. You put some questions to every tenth girl who comes ou88t the front door. This seems very "scientific" and impartial. Think, however, of all the girls who will have no chance to be included, for example, girls who were kept behind as a punishment; girls who were at home because they were sick, working, or did not have food to bring for lunch; and so on. With a nonprobability sample such as this, you have no way to predict whether the results you got are similar to those you would have obtained if you had used the entire population.

Purposeful Sampling

Nonprobability samples, such as **quota**, **purposeful**, **snowball**, and **convenience samples**, are taken when you cannot meet the requirements of probability sampling or are satisfied, for whatever reason, that the group you have chosen meets special requirements that do not involve generalizing your results to the larger group. Patton (1990) calls this **purposeful sampling**: getting "information rich" material from special groups. He lists fifteen different types of purposeful sampling for evaluation studies. Box 6-1 lists some of them.

Box 6-1. Examples of Types of Purposeful Sampling

Extreme or deviant case sampling: the very poor in a village; the very rich; the poor sending all their children to school; the rich sending none.

Typical case sampling: people studied in greater depth to illustrate what you have found to be "typical."

Critical case sampling: selecting a case because it represents a best or worse case scenario: for a program, choosing a village because "if it will work here, it will work anywhere" or because "if it won't work here, it won't work anywhere."

Confirming or disconfirming cases: selecting for further examination cases that fit the pattern you have found; cases that do not.

Source: Patton (1990, pp. 169-83)

For example, you may want to understand the difficulties that handicapped young women face in finding employment, in order to make a film that will educate potential employers. An intensive study of a small number of handicapped women might lead you to a better understanding of their lives than a broad survey of much larger numbers. Sometimes you select a group, such as a community, because it is typical, neither very rich nor very poor. Sometimes you select a group that reflects an extreme, perhaps because that kind of group needs extra help, or because if a program will work there, it will work anywhere. Sometimes you choose a group because a project has worked or has not worked and you want to know why.

Quota Sampling

One common type of nonprobability sample is the quota sample. You may want to see how poor women's lives are structured, rather than gather extensive survey information to see exactly how many women do what. In such a case identify the types of people from whom you need information, and then find people who represent each of the types. For example, within a region, if you are looking at village women who have never taken courses, you might decide that women with young children, lower caste women, and widows are important to your study. Choose women who fall into each of the types rather than spend time on elaborate sampling procedures.

Other Types of Nonprobability Sampling

Both purposeful and quota sampling are nonprobability, that is, not everyone had an equal chance of being included in the study. Other types of nonprobability samples include convenience sampling, in which you just take the handiest people (in development research, however, as Chambers [1983] points out, the danger lies in taking those closest to your office or most like yourself), and snowball sampling, in which one person sends you on to another. Guba and Lincoln (1989) use a snowball sample by asking each interviewee to name someone who would hold very different opinions from those of the interviewee until they have a picture of the concerns, issues, and interests in relation to the groups involved in an evaluation.

Sampling often involves a combination of methods, for example, Fluitman and Oudin (1991), in their study of micro-enterprises in Togo, used cluster sampling to get at enterprises, dividing Togo into nine parts, then again into smaller areas, and finally into blocks. Ultimately, the enterprises were chosen by systematic sampling, every nth entrepreneur on a block. However, some enterprises would have suffered in this selection method, for instance, fishsmokers and masons generally worked in marginal areas and might have been missed altogether, so their areas were identified and added. Soapmaking is a "hidden" activity, so the investigators used a snowball method, in which one soapmaker sent the interviewer along to another, and so on.

SAMPLE SIZE

Most social science research texts do not give you a formula for computing sample size, and this book is no exception. The reason for this is that in the case of probability sampling, choice of sample size is dependent upon having a knowledge of statistics and being able to relate your particular piece of research to the types of statistical tests and procedures that are appropriate to it. This requires an extensive knowledge of all the alternatives, and is particularly important if you are trying to test a hypothesis.

Most people, including many researchers, do not have this kind of background. The simplest thing to do, therefore, if you are doing research in which you will eventually have to decide whether to accept or reject a hypothesis, is to be very clear in your mind about what you need to know. Then before you begin to do any research, consult a statistician for advice on the appropriate sample size. (Statisticians tend to get quite annoyed if they are consulted when it's too late.) However, despite this disclaimer, some rough and ready rules of thumb are given later in this chapter.

Nonprobability Sampling

You will probably be pleased to know that the warning in the previous paragraph does not apply to nonprobability sampling. Statisticians have no interest in nonprobability samples, and no rules are laid down for selecting sampling size. Why? If you cannot take a probability sample, you cannot use the statistical tests that allow you to make claims about the representativeness and significance of your findings, so the statistical rules for computing sample size are irrelevant.

Perhaps, however, the issue is not whether you can or cannot take a probability sample. You may feel that you do not need to. Let us say that you are trying to understand cultural patterns, much as an anthropologist would. Because some ideas and patterns are culturally shared, you can reach the point of diminishing returns, in terms of information, fairly quickly: 10 people may be able to tell you what 10,000 would. Most people, men and women, young and old, in the Ghanaian town of Nsawam will tell you that men do not trade on the roadside and do not do the domestic shopping in the market. That is a cultural pattern or "rule." Asking a carefully selected sample of 250 people would probably not enlighten you much more than asking 20. You can check your information by using other methods, like observing. You will probably see some exceptions. Ask people why. Maybe a subset of rules is involved. Perhaps buying trousers is not domestic shopping or the few men on the roadside are not trading, but "helping out."

Probability Sampling

Here is where the statistics police will have something to say.

The larger your sample, the smaller the difference between the results you will get from the sample and the results you would have got had you studied the entire group or population. This difference is called the **sampling error**. Obviously, the larger the sample, the smaller the sampling error: if you took a 99 percent sample you could be fairly certain that your sampling error would be very small.

But if you are taking a sample, there is little point in taking one that constitutes 99 percent of the entire group. However, you would still like to get a level of precision that makes your findings useful. They will not be perfect, but they will be close enough for what you want. So what is a good figure? Fifty percent? Thirty-five percent?

We have asked the wrong question. Many people are not aware that it is not the percentage or proportion of the entire group or population that matters. In one of those maddening features of statistical logic that appears to fly in the face of common sense, increasing the sample size proportionate to the entire group does not reduce the sampling error in the way you would expect. Instead, the relationship is based on the square root. This means that to reduce the sampling error by 10 percent you would have to increase the sample size by 100 percent, which in many cases is not worth the extra trouble.

Sampling error depends on several things, but not on the proportion that the sample forms of the entire group or population. Instead, it depends on the size of the sample itself. This is a not a particularly difficult concept to grasp once you have a basic understanding of statistics. Most of the books listed at the end of this chapter explain simple statistics, or a statistician can help you, but Casley and Kumar (1988, p. 83) give a surprising example of how this idea works out in practice. "The sample size needed to estimate the birth rate (at a given level of precision) in The Gambia would be the same as that needed to estimate the birth rate in India."

In probability sampling, sample size depends on several factors, namely:

- How much precision you want between your findings and those you would get by studying the entire group. In the formula below, devised by Casley and Lury (1982, p. 76), precision has two elements to be considered, first, the largest difference that you will accept between the value estimated from the sample and the true value in the larger population (D), and second, the level of confidence with which you can say that the result lies within that range of acceptable difference (K).
- How much variability (V) exists among the population, for example, in a population where the people are similar in relation to what you are studying, you will need a smaller sample than one in which variation is greater. You have no automatic way of knowing the variability. You must use your own knowledge of the population, the work of previous researchers, and so on.
- The number of variables you are looking at. More variables can require larger samples.

Formulas for determining sample size for various kinds of samples are available, but the statistical concepts needed to understand them are beyond the scope of this book. You should consult a standard text on statistics or on research methods in sociology or psychology, where samples are commonly used. The following is a simple formula to show the relationship between the elements outlined above (n means sample size):

$$n = \frac{K^2 V^2}{D^2}$$

However, table 6-2 is a useful rough guide.

Table 6-2. Table for Determining Sample Size (s) from a Given Population (P)

N	s	N	s	N	s
10	10	220	140	1,200	291
15	14	230	144	1,300	297
20	19	240	148	1,400	302
25	24	250	152	1,500	306
30	28	260	155	1,600	310
35	32	270	159	1,700	313
40	36	280	162	1,800	317
45	40	290	165	1,900	320
50	44	300	169	2,000	322
55	48	320	175	2,200	327
60	52	340	181	2,400	331
65	56	360	186	2,600	335
70	59	380	191	2,800	338
75	63	400	196	3,000	341
80	66	420	201	3,500	346
85	70	440	205	4,000	351
90	73	460	210	4,500	354
95	76	480	214	5,000	357
100	80	500	217	6,000	361
110	86	550	228	7,000	364
120	92	600	234	8,000	367
130	97	650	242	9,000	368
140	103	700	248	10,000	370
150	106	750	254	15,000	375
160	113	800	260	20,000	377
170	118	850	265	30,000	379
180	123	900	269	40,000	380
190	127	950	274	50,000	381
200	133	1,000	278	75,000	382
210	136	1,100	285	100,000	384

Source: Krejcie and Morgan (1970).

SAMPLING AND NONSAMPLING ERRORS

Sampling error, as we saw earlier, refers to the difference between the results you got from taking a sample and those you would have obtained if you had studied the entire group or population. For example, perhaps 18 percent of a community of 100 can read, but the results from your sample show that 45 percent can read. This is a serious difference and something is wrong. A difference of 10 percent or more is bad here, and the size of the acceptable difference gets even smaller the larger the sample you use (see Mitton 1982, chapter 11 and appendixes 1 and 2, for clear, step-by-step explanations of these matters for nonstatisticians who need to know more about statistics). Maybe you used an inappropriate sampling design or sample size, both of which are sampling errors. But another possibility exists: **nonsampling error**. If you used other interviewers to help you, maybe they did not follow your instructions. Perhaps they talked only to the younger people who have had a chance to go to school, and they ignored the elderly, or perhaps people who could not read refused to be interviewed, or maybe the answers were recorded incorrectly.

These kinds of sampling errors can and do occur unless you monitor the research closely. But sometimes research in non-Western countries presents additional possibilities for both kinds of errors. In terms of sampling error, you may have problems getting an accurate sampling frame or people may be inaccessible, but the possibilities of nonsampling error are even greater, partly because many research techniques are based on assumptions and experiences drawn from Western societies, so that the information you are getting is flawed. Here are some assumptions to watch for:

- That the instrument, such as a survey or test, the language, the concepts, and the circumstances of the research are meaningful and acceptable to the person who is responding.
- That people are accustomed to making individual assessments or judgments. Doing this as a family or group may be more common. Sometimes people are baffled at the notion that assessments can or should be made. "Are you satisfied with your life?" may be like asking a Westerner, "Are you comfortable with the notion of gravity?"
- That people's answers reflect something meaningful in their lives, and that this corresponds to what the researcher is seeking.

Other problematic issues of this sort are discussed in chapters 9 and 10.

THERE'S A LOT MORE...

Statisticians would not have such a fearsome reputation if this were all there was to the subject of sampling, nor would they be writing books called *Statistics Without Tears* (Rowntree 1991). For further guidance, consult Rowntree or the books listed at the end of the chapter.

Once you have the basics, you might find a statistician to advise you on how to apply them to your particular project.

Our Girls

Remember our girls in X District back in chapter 4? We were looking at the reasons they gave for completing education at Grade 6. How would sampling help us? If X District is large, sampling would be sensible. We could take a sample of the girls, or the school districts, or the schools, or the villages. What type of sample depends on practical questions (can we get a list of all the girls or schools or districts?) On other issues, are there very few Muslim schools? If we take a simple random sample of schools, will we be worried if no Muslim schools are in it?

FURTHER READINGS TO HELP YOU

Bulmer, Martin, and Donald R. Warwick. 1983. *Social Research in Developing Countries: Surveys and Censuses in the Third World*, chapter 18. Chicester, U.K.: John Wiley and Sons.

Casley, Dennis J., and Krishna Kumar. 1988. *The Collection, Analysis and Use of Monitoring and Evaluation Data*, chapter 6. Baltimore: Johns Hopkins University Press.

Casley, Dennis J., and Denis A. Lury. 1982. *Data Collection in Developing Countries*, part 7, 2nd ed. London: Oxford University Press.

Chambers, Robert. 1983. *Rural Development: Putting the Last First*. London: Longmans.

Guba, Egon G., and Yvonna S. Lincoln. 1989. *Fourth Generation Evaluation*. Newbury Park, California: Sage.

Kraemer, Helena Chmura, and Sue Thiemann. 1987. *How Many Subjects? Statistical Power Analysis in Research*. Newbury Park, California: Sage.

Mitton, Roger. 1982. *Practical Research in Distance Teaching*. London: International Extension College

Patton, Michael Quinn. 1990. *Qualitative Evaluation and Research Methods*, 2nd ed. Newbury Park, California: Sage.

Rowntree, Derek. 1991. *Statistics Without Tears*. London: Penguin.

Slonim, Morris James. 1960. *Sampling*. New York: Simon and Schuster.

Part III

Research Techniques: The Basic Tools

...... 7 ......

Selecting Your Techniques and Strategies

summary

The problem or issue you are studying should determine the research technique you use, not the other way around.

The information you get will be "stronger" if you use ***triangulation****, that is, as many techniques, researchers, sources of information, methods, and possible explanations as you can.*

Perfecting your technical research skills is important, but some common ***biases*** *in getting information can seriously interfere with the validity or soundness of your research.*

Local people's participation *and* ***insights*** *are essential for understanding issues and successfully implementing projects.*

Key *and* ***proxy indicators*** *can help you to do your research more quickly and to do it when what you wish to study is not easily observable.*

This chapter provides more help with step 8: making decisions about information gathering techniques.

YOUR RESEARCH STRATEGY

Many people unthinkingly choose their technique before they plan their research. They say, "What we need is a survey on..." or "I'm going to do an experiment to see whether..." Often they choose the technique most commonly associated with their field, for example, participant observation in anthropology, testing and measurement in psychology and education, surveys in sociology, or documentary analysis in history, without considering whether the technique is appropriate for their particular project. Some people choose a technique on the grounds of empathy—they like it, or more likely, they do not like another technique—for example, someone decides to do a study of documents because the office or library is more comfortable than the field. However, picture detectives investigating a murder. Will they be satisfied simply to ask suspects whether they had done it? In real life, detectives might ask everyone in the neighborhood to fill out a questionnaire that asked where they were at the time of the murder, if they had seen anything suspicious, and so on. Then they might interview some suspects personally. They would probably watch their movements as well and look up old records to see if any of them had committed crimes before. And, of course, they would examine the crime scene carefully to see if it told them anything.

Asking, watching, and looking up are all research techniques, each of which gives you a different angle on the situation. Each research technique is designed to get certain kinds of information and does not get others, for example, questionnaires tell you what people say they think and do, but participant observation can help you to see what people actually do (if they are prepared to let you watch).

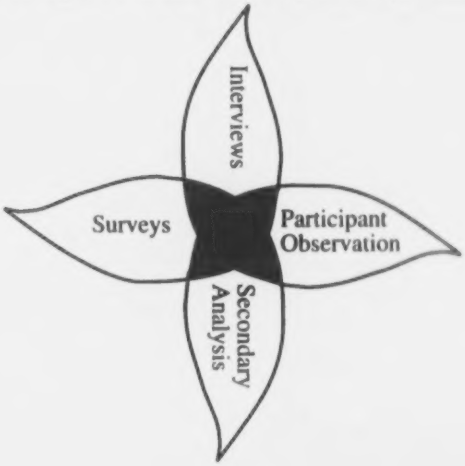
Using as many approaches as possible is part of a process that many researchers call **triangulation**, that is, getting the data through a variety of different strategies so as to strengthen and verify the research findings (Webb and others 1966, p. 174). Triangulation can be broken down into a number of types.

Methodological Triangulation

Methodological triangulation is when you use more than one technique to get the same information. Interviewing, administering a questionnaire, observing, and examining documents on the same phenomenon provide "stronger" information than using a single technique. Each technique addresses a different aspect of the phenomenon. The use of complementary methods also reveals discrepancies that a single technique might not. For example, an official in the Gezira told Ingrid Palmer (1981, p. 34) that women did not work in the fields, but looking over the official's shoulder, she saw a field full of women working. They were, she was told, "helping out." Palmer was interviewing and observing.

Figure 7-1 shows how research techniques complement and support one another. No single technique duplicates exactly the function of the rest. Each technique yields information that only it can obtain, but it also reinforces the other techniques.

Figure 7-1. How Different Research Techniques Complement Each Other



Each of the petals in the figure is a research technique. At the center they all overlap, and on the sides each overlaps with its neighbors. The clear areas represent the material that this technique particularly addresses; the shaded sections are research areas that can be studied using either, or preferably both, techniques; and the center is that part of the research that yields information through use of all the methods. If you had to stake your life on which of these three areas is likely to represent the most accurate, complete research information, you would choose the center, in which you got the information through interviews and questionnaires, reinforced it by observation, and checked it through documentary analysis. In the center section you are getting not only what people say they do and what you see them doing, but also what they are recorded as doing. The second strongest areas of information are the joint sections, where two research techniques can both address the same topic. Finally, in the clear areas you are relying on only one technique, often the only one available for the kind of information you need, but you are getting no verification from any of the other techniques.

Data Triangulation

Data triangulation occurs when you

- Examine the influence of different times, past and present, on whatever you are studying.
- Examine the influence of space, that is, compare the data with that from other places (other villages, other schools, and so on).
- Examine the person at different levels: the individual level, the group level, the collective (entire group) level. A father may say he believes that his daughter should get secondary education, but his own parents hold different views, and he can see their point as well. Does he decide at the individual level or the group level in the end?
- Examine the situation from different angles: a school from the point of view of the head, the teachers, the students, the observer.

Researcher Triangulation

Researcher triangulation is when you use more than one person to collect the same information to examine the influence of the researcher. One special issue in development-related research is the use of "insider" researchers versus "outsider" researchers. An insider can mean someone of the same language group, the same ethnic group, or the same profession. The term depends on the circumstances.

If you have the chance to work with a team, you will probably see that one composed of both insiders and outsiders gives you a special kind of researcher triangulation. Insiders and outsiders have different advantages and disadvantages. Increasingly, insider researchers, such as local sociologists or anthropologists, are giving us insights that differ from those of outsiders. Insiders are familiar with the situation, can read nuances, and can often be more aware of what people are not saying or doing. They may be trusted more by the participants, and people may feel that because they probably know a lot already, they might as well tell them things they would not tell outsiders. Often, they are more aware of the limitations and constraints of the situation and can make more practical recommendations.

The advantages and disadvantages of outsiders are the reverse of those of insiders. They bring a different perspective to the situation and may see things that insiders take for granted. In addition, local people sometimes see outsiders as an opportunity to compare experiences on a broader scale or talk about things that locals might misread or read too well. Men, in particular, may be prepared to discuss things with outsider women that would be taboo to discuss with women in their own society. Unfortunately, this is sometimes because they see such women either as "loose" or as honorary men.

Theory Triangulation

Theory triangulation is when you use different or competing theories to try to explain what is happening. Let us say that teachers in a mixed-sex school are treating the girls as though they were less intelligent and important than the boys. The girls are doing poorly on examinations. You might consider two theories, one that argues that the teachers' behavior has no effect (in which case you will look for another explanation), and one that argues that it does. The first theory is called "relative deprivation" theory. People are thought to estimate their well-being and satisfaction by comparing themselves to particular peer groups, and not necessarily to people whom they see as being different. The girls, therefore, do not mind this treatment. They would only mind it if some of the girls were treated well and others poorly. You could also look at a theory developed by Robert Park (1928) which, put simply, argues that people behave the way they are treated. In this case, the girls are being treated as if they were stupid, and are performing accordingly. Notice in this example that you are waiting to get your results before looking for a theoretical explanation. This is an inductive approach. However, you can also start out with a theory or theories, and set up situations in which you can test them. This is a deductive approach (see chapter 2).

YOUR RESEARCH TECHNIQUES

Table 7-1 compares some research techniques, showing their strengths and weaknesses. Subsequent chapters contain practical advice on each technique, but some guidelines and warnings are common to all of them.

Table 7-1. The Advantages and Disadvantages of Different Research Techniques

Method	*Advantages*	*Disadvantages*
Surveys and questionnaires (chapter 8) Schedules of questions with fixed-choice responses. *Measures and Scales (chapter 10)* Standardized assessment instruments.	Easy to quantify and summarize results, quickest and least costly way to gather new data, suitable for large samples, and useful for repeated studies over time, comparisons between units, standardized instruments contain pretested items, well-suited for studying attitudes.	Hard to obtain data on structure, behavior, etc.; little information on contexts, situations shaping behavior; not suited for subtle or sensitive issues; impersonal; risks of nonresponse, biased answers, invalid questions; requires skills in constructing instruments and quantitative analysis; danger of overreliance on standard instruments.
Interviews (chapter 11) Interviewer poses open-ended questions according to fixed list, interview guide (list of topics), or on-the-spot judgment.	Readily cover wide range of topics and features; can be modified to fit needs before or during interview; can convey empathy, build trust; rich data; provide understanding of respondent's own viewpoint and interpretations.	Expensive, require skilled interviewers; respondent and interviewer bias; noncomparability of responses in unstructured or semistructured interviews; difficult to analyze and interpret results.
Observation (chapter 12) Observations of people and their settings.	Data on behavior are independent of people's generalizations, feelings, opinions; information on effects of situations; flexible, rich data on range of hard-to-measure topics; generate insights and new hypotheses.	Constraints on access (timing, distance, secrecy, participants' objections); sampling problems; costly, requires trained observers; observer bias/reliability (getting the same results on subsequent occasions); may affect behavior of those observed; problems of interpretation, analysis, reporting; may seem unscientific.
Secondary Analysis (chapters 8, 13) Use of documents, reports, files, unobtrusive measurements.	Unobtrusive, those studied do not feel or react to measurement; often quantifiable, repeated measures can show change, participants can help gather and analyze data, often cheaper and faster than collecting new data.	Access, retrieval, analysis problems can raise costs and time requirements; validity and believability may be low and interpretation difficult when data are not used for original purpose; need to interpret in context; limited coverage of many topics.

Source: Adapted from Harrison (1984, pp.19-21). Adapted and reprinted with permission of Sage Publications.

If you leaf through the remaining chapters in this book, you might think that some of the techniques discussed have been omitted from table 7-1. If you read the literature on educational research and evaluation, you

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will come across many research approaches, such as project measurement systems, constructivism, and others that do not appear here. The reason is that they are strategies, rather than techniques. Strategies are combinations of traditional techniques, tailored for a special purpose or directed at a special audience. The techniques themselves are not new. Participant observation, for example, is a long-established strategy. It includes more than simple observation: it involves interviewing, learning from participating, using secondary analysis, and so on to cross-check the results obtained from one technique and get greater depth of understanding.

Two strategies that appear to be promising for development-related research on education are beneficiary assessment, developed by Lawrence Salmen and used in a number of World Bank projects, and participatory learning and action (PLA). Chapter 14 is devoted to PLA approaches. Here we will simply show how each strategy meets a need, and accordingly, uses selected techniques.

Both beneficiary assessment and PLA try, through relatively quick research, to make development more relevant and sustainable. They recognize the importance of social and cultural factors and the value of local insights and perceptions. The difference lies in their audience: the aim of beneficiary assessment is to produce information that will allow managers and decisionmakers to develop better projects or to adapt existing ones. The aim of PLA is to empower local people to set the research agenda, collect the information, analyze it, and create their own action programs.

Each has strengths and limitations: by speaking the language of managers and relating projects to what specific organizations can do, beneficiary assessment ensures that the project is not only meaningful, but deliverable. By contrast, beneficiary assessment does not start from scratch: the organization usually has a project in mind, and the aim is to make it more relevant. It may not be the number one priority of local people. PLA, however, can discover the priorities of local people, but there may not be an external organization, if one is needed, that can meet some of the needs identified in the way that people want them met.

The result is that the two strategies share some common techniques, such as interviewing, observation, and focus groups, but beneficiary assessment is more likely to take an etic perspective ("What do I see these people doing?"), while PLA is more likely to take an emic perspective ("What do these people see themselves doing?") Beneficiary assessment is also more likely to use surveys, because surveys can cover large numbers, and the proposed project can be extended to a number of sites. Surveys can also produce numerical data, and numbers are still valued in the world of large development organizations, because managers want information that is "scientific." PLA uses most of the qualitative techniques described later in this book, often expressed through visual devices, such as matrices and diagramming. These enable local people, including nonliterate people, to describe and analyze their situation and to work out options.

When you come across an approach that sounds like something entirely new, such as constructivism (see Guba and Lincoln 1989), remember that the traditional techniques—asking, listening, watching, reading—have not changed. It is how they are combined and for what purpose that makes the strategy new. Before casting your lot in with a new strategy, take care to find out what its purpose is and whether it meets your needs. No strategy meets every need.

Style

The ideal, when possible, is to get information the way local people do. See if you can adapt any of their methods to the more structured needs and time constraints of your research. People spend a great part of every day gathering enough information about themselves, other people, and their environment to run their lives. They are most comfortable with the methods they use themselves. One of the reasons, for example, that most people are not particularly happy with questionnaires is that this is not one of the usual ways people anywhere in the world get or give information, whereas interviewing (conversations) and observation are. We still use questionnaires, however, because they have advantages in terms of efficiency, standardization, and cost.

Words and Numbers

Some of the techniques in the following chapters are more likely to produce qualitative data—information in words—while others are more likely to produce quantitative data—information in numbers. As should now be clear, one form of information is not more scientific than another. As you will see in chapter 16, material in words can be converted to material in numbers. It might make it easier to handle, but it does not make it any better.

The Instrument

The techniques for collecting information presented in part III and the methods for analyzing the information involve different tools. For example, in informal interviews, the main instrument is the researcher, who develops his or her skill, personality, ability to see patterns, draw conclusions, and so on. With other techniques, such as questionnaires, tests, and measures, the main instrument is the device itself. Both involve human judgment, for example, in developing the instrument, knowing how and when to use it, and determining what procedures are best for analyzing the results.

The Paradigms

In our discussion of the debate in the social sciences today (chapter 2) we looked at several paradigms, or philosophical approaches to looking at the world and collecting information about it. Most techniques do not fall neatly into one philosophical approach or another. For example, a questionnaire, often thought of as the plaything of positivistically-oriented social scientists, can use categories that have been discovered through phenomenological research. By contrast, interviews and participant observation, which may seem to allow much more scope for the individual's perspectives or actions to emerge, may simply be cunningly constructed around the researcher's predetermined categories.

Validity, Reliability, Accuracy, and Precision

In your research, you need **validity** (is it sound?), **reliability** (would you get the same answers if the research were done again?), and to a somewhat lesser extent, **accuracy** and **precision**. Think of your watch. It is a valid measure of time, not of height or temperature. It is reliable if it tells you the same time if you look at it exactly twenty-four hours later. It is accurate if the time is right, not 11:30 when it is really 9:45. It is precise if it tells you the exact time down to the smallest fraction of a second. The notion of less accuracy and precision can be upsetting to some people who believe that only absolute precision, down to a decimal point, is scientific. In chapter 14 we look at an idea that might frighten such people: recognizing the principle of "appropriate imprecision"—that is, not being more accurate or precise than necessary, for as Chambers (1981, p. 95) has pointed out many times, it is better to be vaguely right than precisely wrong. You probably prefer to be quite right, but you do not necessarily need great precision, for example, finding out how much money, to the penny, people would be prepared to spend on books, or to the last household, how many children are not in school. General pictures, patterns, and trends and their relationships are likely to be more important.

Most researchers tend to look for great precision in their own field, but may use fairly rough indicators when dealing with material from another field, or when dealing with material that is somewhat marginal to their problem, for example, using great precision to measure reading skills, but paying little attention to the fact that the measures may contain material that is culturally meaningless to the children who are being measured.

Selection Biases

Problems of validity, reliability, accuracy, and precision are aggrevated by some common **biases** in research.

To whom do you talk? Even if you are doing probability sampling, you will encounter many occasions when you want background information, help with questions that have arisen in your research, and insights into interpretation, so you will need to choose people to help you. If you are not using a probability sample, you have even more questions about how to select people who will help you.

Chambers (1981, 1983, 1991, 1992, 1994a, 1994b, 1994c) has done more than almost anyone to make us aware of the kinds of selection biases most likely to crop up in development-related research. He has addressed most of his cautions to "outsiders," but "insiders" can be equally affected. Some of these biases are presented in box 7-1 and illustrated in figure 7-2.

Box 7-1. Causes of Selection Biases

Many selection biases arise from the researcher's comfort requirements. It is more comfortable to

- Travel shorter distances
- Stay on the main road (the tarmac bias)
- Talk to people like yourself (the important people bias)
- Spend a shorter time
- Do your research in the dry season
- Avoid the embarrassment of intruding on the poor, or if you are a man, on women
- Look at the visible or the easily enumerated (such as school records or ministry figures) rather than the invisible (such as people's attitudes toward women's intellectual capabilities)
- Look at the immediate rather than the trend
- Find out what people say as opposed to what they do
- Play the important person (the garland bias)

The following sections look more closely at some biases. Note that many other kinds of biases are involved in research in addition to those mentioned here. Chapters 9 and 11 discuss biases on the part of interviewees, and chapter 16 discusses biases that can affect your analysis.

NETWORK BIASES

Most social research is targeted at people who are less privilèged, of lower status, and poorer than the researcher. Social researchers usually get to those less privileged through people who have some authority over them, such as employers, school principals, community leaders, union officials, prison wardens, or project directors, in other words, through their own social and professional peers. These people are easy for you as a researcher to get to, and are often more comfortable to talk to. You have a lot in common: profession, social standing, same sex, a common social and professional language. If you are faced with a large, confusing mass of target people and a brief amount of time, letting your peers "translate" the people's condition, needs and wishes and using their networks is easier. This may give you quicker entry, but you may be narrowing your options in terms of getting representative information, because what you are really doing is taking a purposive sample (see chapter 6) without knowing what the selection basis is. As a result, you end up seeing project rather than nonproject situations, adopters rather than nonadopters, successes rather than failures, the exceptional rather than the ordinary. You talk to elites or to the powerful, to men rather than women. This may be all right if you actually need to observe these situations and talk to these people.

Placing too much trust in people like yourself is easy, because they speak your language. Unfortunately, they will probably also reinforce your own prejudices and conceptions, accurate or not. You must talk to your peers for many obvious reasons, but their version of reality is not necessarily more accurate than that of the target population. It is just easier to get.

It's particularly foolish to talk to men about women's and girls' lives and views unless what you want are men's perceptions. Talk to women and girls.

BOTTOM-UP BIASES

The bottom-up bias is the reverse of the network bias. It is usually found among people who take a critical theory approach: they do not want to talk to elites at all, they only want to talk to "the people." They want to work from the bottom up, from the grassroots, rather than the top down. This is usually said with a certain amount of irritating sanctimoniousness, implying that *you* are doing all your research from a howdah on the back of an elephant.

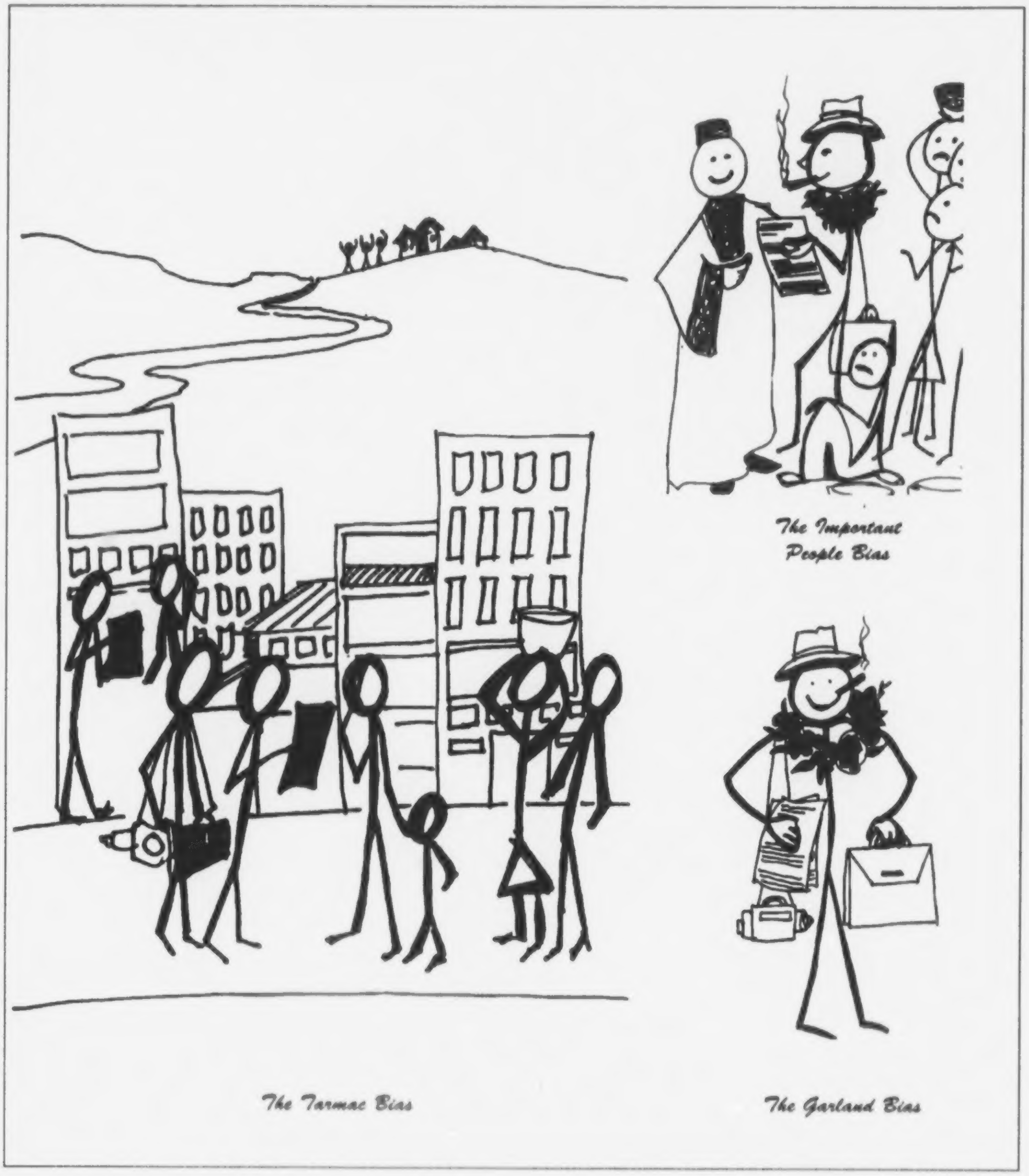
The truth is we have little chance of doing true top-down or bottom-up research in a society of any size. Most researchers are middle class people, and the people at the absolute bottom of the place you are studying are nearly invisible except to the group immediately above them, who are knowledgeable about them because they are desperate not to fall down into this group themselves. You are also unlikely to work from the top down either. True elites are nearly invisible as well except, once again, to the people immediately below them, who are trying to join them. You will, however, be able to talk to people who are in social classes somewhat above you, because your work may be useful to them, because they want a hand in shaping it, because they cannot quite figure out your class if you are an outsider, or because you have come such a long distance on such an odd mission that you must be someone important.

Another reason for not working exclusively from the bottom up is that most societies are hierarchical, and their members either respect the hierarchy or fear it. In either case, by bypassing it you are insulting the system, showing that you do not know or do not care how things work, thereby increasing the possibility of your research being sabotaged, reducing the possibility of it ever leading to anything practical, and possibly endangering the people who are participating in your study. Of course, exceptions always exist—working with some hierarchies, such as those who engage in genocide, is ethically impossible—but you have to think your approach out carefully.

THE "ONE OF THE PEOPLE" BIAS

The one of the people bias is not a selection bias, but a common delusion on the part of researchers. Some people believe that no one understands a particular group of people the way they do. Some anthropologists and "old hands" tend to fall into this way of thinking: "the people" have taken them into their hearts and have made them honorary members. Such researchers then begin to think they are spokespersons for the people and become fanged tigers if any other researcher ventures into "their" territory. It is worth stating here that you will never become one of the people unless you already are. The Irish have a saying about outsiders: "He's more Irish than the Irish themselves." This is not a compliment. Taking this stance affects your ability to be useful to anyone.

Figure 7-2. Some Common Biases



WORKING WITH LOCAL PEOPLE AND LEARNING FROM THEIR KNOWLEDGE

Once researchers realize that their conceptions of organizational structure, motivational systems, incentives, and management are often based on Western cultural biases (even if they are not Westerners their professional training is usually embedded in Western concepts), the value of local knowledge, both technical and organizational, becomes clearer. Knowing how groups are structured, how people learn, and how various people fit into the scheme of things are all important in understanding what is going on, and in the case of applied research, are essential for organizing and expediting workable projects. The importance of this topic becomes much clearer in chapter 14.

People will usually give you information geared toward your level of understanding, and if you are new to a place and have the cultural knowledge of a four-year-old, they will start from there. Thus, working with local people in determining the problem and gathering information can provide more sophisticated information in a shorter time. They can help you refine or re-orient the categories of inquiry.

Sometimes, researchers require full-time or part-time assistance in carrying out the work, particularly those who are doing surveys. In some cultures, there will be a personal onus on your research assistants to see that you get valid information. However, they may think they should "clean up" their school, village, culture or the respondents' answers to make things look better to you, an outsider. Another possibility is that your choice of local assistants can get you involved, usually without your awareness, in local factions.

To achieve anything useful, you have to choose assistants wisely. University students or graduates are not necessarily the best bet. They are often tied up in demonstrating technical expertise, such as doing surveys. What you require is someone who is intelligent, astute, and nonthreatening, who may be, say, a member of a mother's group or a secondary schoolgirl. Whether people of this standing are acceptable to respondents of higher standing is something you will have to find out. Whoever you choose, it is an advantage if your assistants understand the larger goal of your research, not just the bit they are doing.

DEVELOPING KEY AND PROXY INDICATORS

No matter what techniques you use, you cannot look at everything, and anyway, everything may not be readily accessible. So you have to choose what you will ask or look at to give you the best and fastest picture (**key indicators**) and what you will use to represent things that you cannot observe or ask about directly (**proxy indicators**).

A substantial body of literature on girls' participation in school is now available. As a result, you can assess a particular situation relatively quickly by looking at key indicators such as those researchers Hartnett and Heneveld (1993) have identified (box 7-2).

For other kinds of information you may be able to ask local people to suggest indicators, and then discuss their applicability and exceptions. For example, in one small community all the standard indicators of social class proved irrelevant. The one that worked, devised by local people, was "families who sent their daughters out to work as servants versus families who had other people's daughters as servants."

Proxy indicators are substitute measures, in which something observable stands for a more abstract concept. For example Hartnett and Heneveld's (1993, p. 7) indicator for accomplishment—success upon leaving school—is not as easily measured as the other indicators, so they used employment as a proxy indicator for accomplishment: the percentage of females versus males participating in the labor force, and women teachers as a percentage of the total number of teachers in the school system.

Some proxy indicators used to determine "well-being" in Africa over the years have included ownership of bicycles and sewing machines in Malawi, possession of tin cans among the Maasai in Kenya and Tanzania, and use of tin roofs in many regions. Table 7-2 shows a set of proxy indicators for well-being in rural communities in Java. As you can see they are relative; they would not mean much in other areas.

Box 7-2. Some Key Indicators of Girls' Participation in Schools

Access

Gross enrollment ratios at primary, secondary, and tertiary level (students of all ages as a percentage of the populations of official school age)

Gross primary admission rate: new entrants (enrollment in the first grade of primary school, less repeaters) as a percentage of the six-year old population

Enrollment in sciences at the tertiary level (number of male and female students as a percentage of all male and female students)

Attainment

Persistence to Grade 4

Completion rates: the proportion of entering students who can be expected to complete the final year of primary and secondary school

Continuation rate from the last grade of primary to the first grade of secondary in the following year (and the same from secondary to tertiary)

Repetition rates at primary and secondary levels (total number of students in public institutions who repeat a grade divided by the number of students enrolled)

Mean years of schooling: average number of years of schooling per person age twenty-five and above

Adult literacy: literate population as a percentage of the population age fifteen and older

Accomplishment

Labor force participation rate: percentage of the population of each sex that participates in the labor force

Percentage of women teachers as a percentage of the total teaching staff at all levels

Note: These indicators are available for most countries in Sub-Saharan Africa in Walker (1994).

Source: Hartnett and Heneveld (1993. pp.4-7)

Proxy indicators only work if they allow you to draw conclusions reliably. They are clues, not causes. Researchers often cite the example of an expert who, seeing that a lot of good schools also had refrigerators, took the presence of a refrigerator in the school as a proxy indicator of a good school. Someone then decided that giving refrigerators to schools was a good way of raising school quality cheaply. Another problem is that proxy indicators tend to be visible assets, which may be convenient for the researcher to observe, but can be highly misleading. A very poor or vulnerable household may inherit a good house, but remain very poor and vulnerable, or a very poor family may be given a radio cassette player by a visiting relative. The assumptions upon which proxy indicators are chosen have to be made very clear, as they are in table 7-3.

Table 7-2. Measures of Prosperity in Rural Java

Indicator	*Prosperity level*		
	Low	*Medium*	*High*
House	Bamboo	Combination	Brick and plaster, teak
Rooms	1-2, small	—	Many, large
Floor	Dirt	Bricks covered with cement, limestone blocks	Polished cement blocks
Roof	Straw, fronds	—	Tiles
Windows	None	Wooden with slats	Wooden frames with glass panels
Bedding	Mats on floor	Bamboo slat beds with mats	Wooden or iron beds with mattresses and mosquito nets
Lighting	Small oil lamps	Hanging kerosene lamps	Home generator
Water source	Neighbor's well, river, spring	—	Own well
Toilet	Outdoor not enclosed	Outdoor enclosed	Indoor
Transportation	None	Bicycle, draft cart	Motorcycle, scooter, truck, minivan
Entertainment equipment	None	Radio, tape recorder	Battery television
Refreshment served to interviewer	None, tea without sugar	Tea with sugar, other sweet drink	Tea or coffee with sugar plus snacks

— No indicator.

Source: Soetoro (1979).

Table 7-3. Tin Roofs as a Proxy for Village Welfare

Phenomenon	*Proxy*	*Assumptions*
Village welfare	Tin roofs	• Material available • Values and lifestyle support tin roofs • No recent dignitary visit • Development level high enough to allow investment in tin roofs

Source: Honadle (1979, p.12).

ETHICS

When you consider the potential for good or ill of both research and development projects and the fact that you are usually studying people more vulnerable and less fortunate and powerful than yourself, one paragraph on the ethics of your research is inadequate except to guide you to more detailed discussions. The problem is that there is no universal set of ethical principles, or even a core hierarchy of values, that can

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guide us. Most professional associations have statements of research ethics, which are often debated among their members, and that often are not applicable somewhere or workable in real life. Vexing questions arise. To whom or what are you responsible? The organization for which you work? The sponsors of the research? Your profession or discipline? The people who help you in your research? The answer is all of them, but problems crop up when any one of these comes in conflict with another. Every circumstance differs. The most vulnerable are probably the participants in your research, and the repercussions of your research on them must always be the first consideration. One cardinal rule is that merely by doing your research, you will raise people's hopes and expectations. Never promise anything you cannot deliver. Wilson (1993) provides a thoughtful view on ethics from the outsider researcher's point of view. But you may be an insider, like Florence Shumba, who, after reading Wilson's article, wrote:

> The kind of behavior researchers have towards locals tells us that really they just want to exploit them and take from them their ideas and information. It also tells us that they really don't care at all... Not all researchers are exploiters, but most are, and I think it is time up for this now (Wilson 1993, p. 199).

What have *you* learned as a result of being researched? Try to apply the lessons as you begin your own research career. For a discussion of these issues and more see works such as Bulmer and Warwick (1983); Casley and Lury (1982); Deyhle, Hess, and LeCompte (1992); Kimmel (1988); or Miles and Huberman (1994).

FURTHER READINGS TO HELP YOU

Bulmer, Martin, and Donald P. Warwick. 1983. *Social Research in Developing Countries: Surveys and Censuses in the Third World.* Chichester, U.K.: John Wiley and Sons.

Casley, Dennis J., and Denis A. Lury. 1982. *Monitoring and Evaluation of Agriculture and Rural Development Projects.* Baltimore, Maryland, and London: The Johns Hopkins University Press.

Chambers, Robert. 1981. "Rapid Rural Appraisal: Rationale and Repertoire." *Public Administration and Development* 1:95–106.

______. 1983. *Rural Development: Putting the Last First.* London: Longman.

______. 1991. "Shortcut and Participatory Methods for Gaining Social Information for Projects." In Michael M. Cernea, ed., *Putting People First*, 2nd ed. New York: Oxford University Press.

______. 1992. *Rural Appraisal: Rapid, Relaxed and Participatory.* Discussion Paper No. 311. Brighton, U.K.: University of Sussex, Institute of Development Studies.

______. 1994a. "The Origins and Practice of Participatory Rural Appraisal." *World Development* 22(7): 953-69.

______. 1994b. "Participatory Rural Appraisal (PRA): Analysis of Experience." *World Development* 22(9): 1253–68.

______. 1994c. "Participatory Rural Appraisal: Challenges, Potentials and Paradigm." *World Development* 22(10):1437–54.

Deyhle, Donna L., G. Alfred Hess, Jr., and Margaret D. LeCompte. 1992. "Approaching Ethical Issues for Qualitative Researchers in Education." Margaret D. LeCompte, Wendy Millroy, and Judith Preissle, eds., in *The Handbook of Qualitative Research in Education*, pp. 597–641. San Diego, California; London; Tokyo: Academic Press.

Kimmel, Allan J. 1988. *Ethics and Values in Applied Social Research.* Newbury Park, California: Sage.

Park, Robert 1928. "The Bases for Race Prejudice." *The Annals* 140:11–20.

Miles, Matthew B., and A. Michael Huberman. 1994. *Qualitative Data Analysis*, 2nd ed. Thousand Oaks, California: Sage.

Salmen, Lawrence F. 1992. *Beneficiary Assessment: An Approach Described*. Washington, D.C.: World Bank, Policy and Social Policy Division, Africa Technical Division.

Walker, Eylce M. 1994. "Statistical Indicators of Female Participation in Education: An Update." Washington, D.C.: World Bank, Technical Department Africa Region. Draft.

Webb, E.J., D.T. Campbell, R.D. Schwartz, and L. Sechrest. 1966. *Unobtrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.

Wilson, Ken. 1993. "Thinking about the Ethics of Fieldwork." In Stephen Devereux and John Hoddinott, eds., *Fieldwork in Developing Countries*. Boulder, Colorado: Lynne Rienner Publishers.

What existing materials are good for:

- Getting a background picture
- Clarifying what you should study
- Making sure no one has already done what you propose
- Providing material to be analyzed (entire studies can be done through existing materials)

Examples:

- Is there any relationship between family size and children's education?
- Do students who have to repeat a grade drop out more frequently than those who do not?

Sample study:

Lloyd, Cynthia B., and Anastasia J. Gage-Brandon. 1992. *Does Sibsize Matter? The Implications of Family Size for Children's Education in Ghana.* Working Paper No. 45. New York: The Population Council.

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Using What Is Already Available

summary

Before collecting your own information, check to see if there are any existing materials that might save you time. Possible sources of data include international agencies, nongovernmental organizations, bilateral donors, universities and other research institutions, government organizations, other specialized organizations, and professional journals

This chapter will give you additional help with step 7: making decisions about sources of information.

Despite the increasing recognition of the need to improve female access to education, female enrollments in Sub-Saharan African countries as a percentage of primary and secondary enrollments have increased only slightly in the past twenty years. Female wastage or dropout rates are higher and achievement is lower. The factors influencing this have been the subject of much research, but how do you get at it if you need to?

USING THE LITERATURE

Ignoring the literature can be wasteful of your time and costly. Chambers (1985, p. 405) mentions a failed World Bank rural development project in northern Nigeria that was based on assumptions that three separate studies had already shown to be incorrect. In your case a more likely possibility is that you will end up spending time collecting information that someone else has already collected and analyzed.

This chapter is based on the assumption that you may not have easy access to a library that contains journals and books on educational research. University libraries and economic and social research institutions are good sources, but are usually not open to the public. People in university departments of sociology, psychology, education, and anthropology are working on the kinds of research described in this book. You will not be able to match a university researcher in terms of familiarity with the literature or training in research, but if you have a well thought out project, practical experience in your own field, and local knowledge of the place or situation you want to study, you might find that a professional researcher or librarian will find your work interesting enough to give you some time, and perhaps help you to gain access to a library. Also, if you know a researcher at a university is doing work that might help you, write to that person and ask if you can have reprints of articles he or she has written. The reference section of a large general public library may contain some helpful works as well, such as some of those listed in this chapter. You can use the library as a source of directories and guides to your subject. A friendly librarian is your biggest resource. Although you may have no opportunity to use one now, you should know that the library trend in the future will be toward getting information through computer online databases. These take two forms: **online bibliographic databases**, which give titles of books and articles, and **databases** that contain text rather than just titles. These are already established in many large university libraries for academic purposes, but databases will soon be useful for grassroots groups in Africa (see box 8-1).

Box 8-1. Online Sources of Information

One online database, the Educational Resources Information Center, indexes hundreds of periodicals and hundreds of thousands of research reports on education. You can get access to appropriate materials by entering key words, such as author, title, or subject matter into the computer. The computer then produces a bibliography of articles on your subject. Obviously, choosing sufficiently specific terms is important: using poverty as a key word would produce thousands of articles and using participatory rural appraisal as a key word would produce dozens. Using the words "and," "or," and "not" can help to limit searches. Usually, a librarian performs the search, but some major libraries permit users to carry out the search.

Other online data sources access books, so that by searching several relevant online databases you can get a bibliography of relevant books and articles in, for example, English, French, or both, for a set number of years. Once you have the titles you still have the problem of getting the materials. They may have to be ordered from another library, perhaps a library abroad. Most searches take about fifteen to twenty minutes. If you do them through a commercial organization the cost can be high, but some university researchers who have access to a suitable database may do a search for you.

If you have access to the Internet, you can also get at references. One example is a bibliography of participatory rural appraisal materials (see chapter 14) that can be accessed through the Internet address given in that chapter. Of course, through electronic networks you can also get access to newsletters and can communicate directly with people who share your interests, who may be able to advise you, who can also learn from your experiences.

Other databases provide complete documents, rather than titles, abstracts, or raw data. University libraries, international organizations, governments, and commercial organizations sometimes have this facility. In the last few years, the Women's Research and Documentation Project in Dar es Salaam has been preparing to document information on women's issues and to provide practical resources for grassroots organization by developing online networks and databases. Women in about a dozen other African countries are also organizing to collect computerized information. The Global Fund for Women provides funding for some of these activities.

When you are reading someone else's work, ask yourself the following questions (Stewart 1993, pp. 23-24):

- What was the purpose of the study and why was the information collected?
- Who was responsible for collecting the information? What qualifications were involved?
- What possible biases?
- What information was collected? How were units and concepts defined? What measures were used?
- When was it collected? Was the period unusual in any way? Is the information still timely?
- How was the information obtained?
- How consistent is the information with other sources?

Other sources of information are national statistics departments, government information services, international organizations, nongovernmental organization documentation centers, and bilateral donors. The rest of the chapter deals with the kinds of information you can get from them and some of its limitations.

STATISTICS

Statistical information can help you put your own information into context, for example, how is your region, district, or state doing in relation to girls' enrollment at the primary level compared with the rest of the country? They can also help to set targets and to evaluate the outcome of interventions.

Statisticians are highly trained people, and enumerators (the people who collect information for them) are carefully instructed, but they are not magicians. Inadequate funding, outdated equipment, questions that have become irrelevant, people who fall through the information net, figures not kept or kept improperly, slowness of output, and poor management are some reasons why statistics are not all that we might wish. These problems are not peculiar to developing countries, although some of them may be seriously aggravated in circumstances of little money, poor transport, unreliable postal systems, nomadic people, little political interest, government manipulation of data, small staffs, and no computerized data processing systems. These problems are compounded by the use of irrelevant concepts as data categories, such as Western kinship units. Even so, industrial countries also have their share of problems, for example, estimates suggest that close to 4.5 million people were not reported on the 1990 U.S. census. Also, the researcher who is trying to compare recent records with older ones may find other problems: geographic boundaries may change or categories may be altered. For example, in the U.S. census, the entire coding scheme for occupations changed between 1970 and 1980.

Another problem for the researcher in gender-related research is that figures may not be **disaggregated** (broken down) by sex. In the area of education, you may find that you cannot tell from official figures how many girls versus boys are studying science subjects, or how well each sex has done on examinations. You may have to go back to original records, if you can gain access to them, and if they were collected by sex to begin with.

Finally, remember that most official statistics were not collected for the purpose you want to use them for. They are by-products of administration and are shaped by politics, lack of funds, and other considerations. As one researcher has said: "Statistics are the poetry of Latin America" (Tannenbaum as cited in Randall 1975, p. 13). Unfortunately, that can be true in other parts of the world too.

SOME TIPS

If you are collecting figures, try to find out how a major source of information, such as the census or the ministry of education, categorizes information and decide whether comparing it to your results would be useful. If so, categorize your groupings in the same way, for example, age groups should correspond. Collecting information on the six to ten age group is pointless if the census groups them in a birth to age ten category, unless you have a good reason (such as children from birth to age six are not of school age, and it is school-age categories that you are looking at).

Finally, remember that statistics are your servant, not your master. As Chambers (1981, p. 99) points out, it is important to know what is not worth knowing. Don't collect figures just because they're there.

Statistics in Sub-Saharan Africa

At the time of their independence, few African countries were collecting information on demographic and social statistics. Although the English-speaking countries had a strong census-taking tradition going back to the end of the nineteenth century, most of it involved simple headcounts.

The result is that many African countries have not issued basic information, such as annual yearbooks or trade statistics, since 1983. A similarly dismal picture exists for education statistics. As many countries in Sub-Saharan Africa expanded their education programs, especially at primary level, and many private schools were established, the work of compiling reliable statistics on school enrollment by level, age, and sex became more difficult. For some countries, published enrollment figures for primary and secondary levels do not accurately reflect the true situation, because corresponding figures from private institutions are incomplete. In 1981 statistical experts Kpedekpo and Arya (1981, p. 74) reported serious gaps:

> Such statistics as are available are significantly more complete for formal than for informal education and for maintained than for unassisted institutions...Published statistics tend to concentrate too narrowly on enrollments, projected enrollments and pupil-teacher ratios, to the neglect of other vital information. For example, the data available on the costs of education are inadequate, and no solid studies seem to exist on the relative costs of education between primary, secondary and higher education, or between rural and urban institutions, between comprehensive and general secondary education, between vocational and academic education, or between vocational on-the-job training and the formal vocational education system.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) is now trying to help countries to improve their statistics through a major technical assistance project for strengthening national statistical information systems for planning and managing education.

Censuses

Let us now look at some of the statistics that are available.

The Handbook of National Population Censuses: Africa and Asia (Domschke and Goyer 1986) provides a background to censuses and some national demographic surveys for each of the countries of Africa. Despite the fact that it is no longer up-to-date, it gives a useful historical account of each census taken in every country, explains how the terms were used, indicates anything unusual about the census, and provides an estimate of the quality of the census. Not all the countries have published census information. For example, the Comoros and Congo have no published material, although basic data may be available to researchers. As of 1986, some countries had only one published census (Cameroon, Côte d'Ivoire, Guinea, Mauritius, Niger, Somalia, and Zaire.) Others have had as many as six since the 1940s, for example, Reunion, Tanzania, and Zanzibar. Some countries such as Lesotho have taken censuses every ten years. For the most part, for a variety of reasons, census dates have little regularity across Africa or within particular countries.

Because most countries follow international guidelines for census definitions, concepts, and data collection methods, the actual data may be internationally comparable to some extent. Among the information that may be found in African censuses is the following: actual or present residence at the time of the census, usual residence, place of birth, duration of residence, place of previous residence, urban/rural, sex, age, relation to household head, marital status, children born alive, children living, citizenship, literacy, school enrollment, educational attainment, educational qualification, ethnic/racial origin, language, religion, household composition, economically active/inactive, occupation, industry, occupational status, income, and housing.

Not all country censuses contain information for each of these topics. In relation to education, for example, Burkina Faso has information on literacy only. Table 8-1 presents two examples from the handbook, showing the types of information collected for two countries: Central African Republic and Kenya. The handbook contains pages like this for every country in Africa.

Table 8-1. Sample Census Categories: Central African Republic and Kenya, Selected Years

	Central African Republic		*Kenya*		
Year	*1961*	*1975*	*1962*	*1969*	*1979*
Actual residence		x	x	x	x
Usual residence	x	x	x	x	
Place of birth		x	x	x	x
Duration of residence		x	x		
Place of previous residence		x			x
Urban/rural		x	x	x	x
Sex	x	x	x	x	x
Age	x	x	x	x	x
Relation to household head		x	x	x	x
Marital status	x	x	x	x	x
Number of children born alive		x	x	x	x
Number of children living		x	x	x	x
Citizenship			x	x	x
Literacy	x	x			
School enrollment		x		x	x
Educational attainment		x	x	x	x
Educational qualification					
Ethnic/racial origin		x	x	x	x
Language	x				
Religion			x		
Household composition		x	x		
Economically active/inactive	x	x	x		
Occupation	x	x	x		
Industry		x	x		
Occupational status		x	x		
Income					
Housing		x	x		

x Information available in census.

Source: Domschke and Goyer (1985). Reprinted and adapted with permission of Greenwood Publishing Group, Inc. , Westport, Connecticut.

NATIONAL STATISTICAL OFFICES

Most Sub-Saharan African countries have a national statistical office or department of statistics that has detailed local information about student numbers by sex and age in each grade, in each type of school, and at each level; numbers of repeaters and dropouts; and so on. Such detailed information will probably not appear in the census itself. You might inquire how to get access to this. Is it through the statistical office, the ministry of education, the ministry of planning, or some other source?

Perhaps more important, national statistical offices are good sources of recent statistical information other than that gathered in the national censuses. For example, the World Bank's Social Dimensions of Adjustment Surveys and the Living Standards Measurement Surveys contain extensive information on education. Other sources that your national office may have include the Demographic Health Survey and the National Household Survey Capability Program for Africa.

NATIONAL GOVERNMENT PUBLICATIONS

Many countries publish useful reports and studies, either through the relevant ministry or department, or through a central publications or information office. Working parties may have been convened to look at topics such as sexism in textbooks or how to integrate family life education into the curriculum. Write to the appropriate body to see if anything has been published that might help you in your study. Such reports and studies will often mention other reports, and you can begin to collect useful materials in this way.

INTERNATIONAL AGENCIES

Many of the major international agencies and organizations are now focusing some of their research efforts on problems of girls' education. This section briefly discusses some institutions that have policies or studies on education in Sub-Saharan Africa related to the problems girls face.

The World Bank

World Bank initiatives aimed at encouraging girls' attendance at school, although expanding, are still at an early stage. They are usually included as components of general education projects. Most activities are designed to increase educational opportunities for girls. They include a number of pilot programs, including provision of satellite schools to bring primary schools closer to the homes of young girls, thereby making it more likely that they will attend; financing nonformal education programs to reach very poor girls unable to attend formal schools; launching experiments designed to make formal government schools more attractive to girls; hiring more women teachers; continuing scholarship programs for secondary school girls; removing sexist language from textbooks and including positive role models for girls; and increasing the adequacy of physical facilities for girls and women teachers. The World Bank has also worked to develop more community involvement: some programs include the School Development Fund in Senegal and information campaigns in Burkina Faso, Chad, and Senegal. Finally, the Human Resources Division of the World Bank's Economic Development Institute has held regional seminars on girls' education in Africa, which have been followed by national seminars in which individual countries assess their situation and develop action plans. Khoudari (1993) recently reviewed the Bank's experience with assisting girls' education for one of the Africa departments. Box 8-2 lists some World Bank studies and policy papers on female education.

Box 8-2. Examples of World Bank Studies and Policy Papers on Education

Hartnett, T., and W. Heneveld. 1993. *Statistical Indicators of Female Participation in Education in Sub-Sahara Africa.* Technical Note No. 7. Washington, D.C.: World Bank, Africa Technical Department, Human Resources Division. (Also available in French.)

Herz, B., K. Subbarao, M. Habib, and L. Raney. 1991. *Letting Girls Learn: Promising Approaches in Primary and Secondary Education.* Discussion Paper No. 133. Washington, D.C.: World Bank. (Also available in French.)

Hyde, Karen A.L. 1989. *Improving Women's Education in Sub-Sahara Africa: A Review of the Literature.* Population and Human Resources Department, Education and Employment Division Paper Series No. 89/15. Washington, D.C.: World Bank.

King, E., and M. Hill. 1991. *Women's Education in Developing Countries: Barriers, Benefits and Policies.* Washington, D.C.: World Bank.

Lockheed, Marlaine E., Adrian Verspoor, and others. 1991. *Improving Primary Education in Developing Countries.* Washington, D.C.: World Bank.

Odaga, Adhiambo, and Ward Heneveld. 1995. *Schools and Girls in Sub-Saharan Africa: From Analysis to Action.* Africa Technical Discussion Paper. Washington, D.C.: World Bank.

Subbarao, K., and L. Raney. 1993. *Social Gains from Female Education: A Cross National Study.* Discussion Paper 194. Washington, D.C.: World Bank.

Summers, Lawrence H. 1992. *Investing in All the People: Educating Women in Developing Countries.* Working Paper No. 905. Washington, D.C.: World Bank.

World Bank. 1994. *Questions for the Analysis of Female Participation in Education in Sub-Saharan Africa.* Washington, D.C.: Africa Technical Department.

The address of the World Bank is The World Bank, 1818 H Street N.W., Washington, D.C. 20433, U.S.A.

The African Development Bank

The African Development Bank sector policy papers include studies of gender equity that will guide it's funding policies. Support for projects that try to remedy inequalities and to ease enrollment in institutions in which women have been underrepresented will be a special priority.

Consult the African Development Bank office in your own country, or write to

The African Development Bank
2001 Pennsylvania Avenue N.W., Suite 350
Washington, D.C. 20006
U.S.A.

The United Nations Education, Scientific, and Cultural Organization

Since 1960, most Sub-Saharan African countries have invested a considerable share of their resources in one or more national censuses and surveys and have established a statistical infrastructure to continue a program of data collection. UNESCO statistical yearbooks provide information and analyze data from these sources on the social and economic characteristics of the population. Box 8-3 provides some examples of UNESCO publications.

UNESCO/BREDA, UNESCO's regional office in Dakar, has published a series of documents on the education of women in Africa. Some titles in the series are shown in box 8-3.

Box 8-3. Examples of UNESCO Publications

UNESCO. 1972. *Haute-Volta: projet expérimental d'égalité d'accès des femmes à l'éducation.* Series No. 2794/ RMO.RD/MC. Paris.

______. 1975. *Report on the Relationship between Educational Opportunities and Employment Opportunities.* Paris.

______. 1983. *Identification of Sex Stereotypes in and from School Textbooks.* Paris.

______. 1991. *World Education Report.* Paris.

UNESCO-UNICEF (United Nations Children's Fund) Co-operative Programme. 1988. *Women's Education in Africa: A Survey of Field Projects in Five Countries.* Paris.

UNESCO's address is United Nations Educational, Scientific and Cultural Organization, Place de Fontenoy, 75770 Paris, France.

Examples of UNESCO/BREDA Publications

Bouya, A. 1994. *African Girls and the School Science and Technology Curricula.*

Kainji, K., and J.N. Chikhunga. 1994. *Access of Girls to Primary and Basic Education in Malawi.*

Maiga, F.D. 1993. *L'Accès des Filles à l'Education de Base au Gabon.*

Phillott-Almeida, R.A. 1994. *A Profile of the Roles of Women as Economic Producers and Family Supporters in The Gambia.*

Tchombe, T.M. 1994. *Access of Girls to Basic Education in Cameroon.*

The address for UNESCO/BREDA is UNESCO/BREDA, 12 Avenue Roume, BP 3311, Dakar, Senegal.

United Nations Children's Fund

Research by the United Nations Children's Fund (UNICEF) has identified the general factors affecting female participation in education and the interventions that aim to increase it. Some of the interventions that have been tried around the world include recruiting women teachers, establishing day care centers to allow girls with children to attend school, building appropriate facilities, and providing scholarships to girls. Box 8-4 lists some of UNICEF's studies.

Box 8-4. Examples of UNICEF Studies

UNICEF. 1991. *Country Reports: Sub-Saharan Africa.* New York.

______. 1991. *The Girl Child: An Investment in the Future.* New York.

______. 1992. *Educating Girls and Women: A Moral Imperative.* New York.

______. 1994. *Strategies to Promote Girls' Education: Policies and Programs that Work.* New York.

UNICEF's address is The United Nations Children's Fund, Programme Publications, 3 U.N. Plaza, New York, NY, 10007, U.S.A.

BILATERAL DONORS

Many national donors provide support for female education activities. Among them are the international development agencies: the Canadian International Development Agency, the Danish International Development Agency, Irish Aid, the *National Advies Raad voor Ontwikkelingssamenwerking* (NAR) (Netherlands), the Norwegian Agency for International Development, the Swedish International Development Authority, and the U.S. Agency for International Development (USAID). Two examples of the work of such donors follow.

United States Agency for International Development

In addition to activities designed to increase access, USAID has designed several projects to increase the physical and social well-being of girls, such as removing sexist language from textbooks and including positive role models for girls; increasing the adequacy of physical facilities for women in primary teacher training institutes; including population, health, and nutrition information in schooling; and training teachers to be more aware of gender-related issues in the classroom. Box 8-5 lists some USAID studies.

Box 8-5. Examples of USAID Studies

Adams, F.M. 1980. *Early Education for Girls: A Priority for Literacy.* Washington, D.C.: USAID.

Anderson, M.B. 1986. *The Gender Manual Series: Gender Issues in Basic Education and Vocational Training.* Washington, D.C.: USAID, Office of Education and Women in Development.

Floro, M., and J. Wolf. 1990. *The Economic and Social Impacts of Girls Education in Developing Countries.* Washington, D.C.: USAID, Office of Education and Women in Development.

Tietjen, K. 1991. *Educating Girls: Strategies to Increase Access, Persistence, and Achievement.* Washington, D.C.: USAID.

Also available from USAID is a useful series of small handbooks on research methods by Krishna Kumar, each on a separate topic, such as interviewing or surveys.

USAID's address is United States Agency for International Development, 320 21st Street N.W., Washington, D.C. 20523, U.S.A.

The Swedish International Development Authority

SIDA provides support for female education activities and cooperates with Sub-Saharan African countries. Box 8-6 presents some sample works sponsored by SIDA.

Box 8-6. Examples of SIDA Publications

Mbilinyi, M., and P. Mbughuni, eds. 1991. *Education in Tanzania with a Gender Perspective: Survey Report.* Education Division Documents. Dar es Salaam and Stockholm: SIDA.

Palme, M. 1993. *The Meaning of School Repetition and Dropout in the Mozambican Primary School.* Education Division Documents No. 60.

SIDA's address is Swedish International Development Authority, Birger Jarlsgatan No. 61, S-10525, Stockholm, Sweden.

OTHER ORGANIZATIONS

The Donors to African Education Working Group on Female Participation, composed of twenty-three multi- and bilateral funding agencies, actively promotes female education. The working group works with African education officials and scholars to develop national education policies that will enhance girls' participation in education. One objective of the program is to strengthen local capacity for conducting independent research into strategies for closing the education gender gap in Africa. Currently, fifty-five major projects are being funded under this program. The working group is also carrying out exploratory work on science and mathematics education for girls and on the role of nongovernmental organizations in promoting girls' education (Odaga and Heneveld 1995).

The Rockefeller Foundation serves as convener and lead agency for the Donors to African Education consortium. For more information, write to the foundation.

Dr. Joyce Lewinger Moock
The Rockefeller Foundation
420 Fifth Avenue
New York, NY 10018
U.S.A.

or

Dr. Katherine Namuddu
The Rockefeller Foundation
P.O. Box 47543
Nairobi, Kenya

You might also write to the African Academy of Sciences/Donors to African Education Small Grants Program:

Program Officer
Research Priorities for Education of Girls and Women
African Academy of Sciences
P.O. Box 14798
Nairobi, Kenya

The Forum for African Women Educationalists (FAWE), a pan-African nongovernmental organization, addresses gender disparities in the field of education, influences educational policies, and mobilizes resources in support of female education in Africa. It consists of the highest-serving women in ministries of education, including serving female ministers and deputy ministers, as well as vice-chancellors and deputy vice-chancellors, and prominent women educationalists. It currently consists of thirty-two members in twenty-three countries, plus fourteen national chapters. The forum's work program covers five major areas: strategic resource planning, seed grants for country experiments, advocacy and public information, awards for innovators, and targeted capacity building and leadership. Recently, the forum has begun to produce a newsletter. For more information, write to the forum.

Forum for African Women Educationalists
P.O. Box 53168
Nairobi, Kenya

RESEARCH PUBLICATIONS AND OTHER MATERIALS

In addition to statistics, you can get useful published material from scholarly books and articles in professional journals; from national sources, such as reports of government departments and nongovernmental agencies; from international sources, such as United Nations agencies; and finally, from unpublished sources, such as internal reports and working papers. If you are in doubt about the reliability of a publication, such as a magazine or newspaper article, ask someone who is knowledgeable about the field. Above all, remember that just because something has appeared in print does not mean it is valid or accurate.

Books

At the end of each chapter in this book you will find titles of some important books on research methods or studies that have used these methods. Few libraries in the world will have all of them. To write this book I had to order many of them through an interlibrary loan system. Your public library or university library may be able to get a book for you this way, although a fee may be charged. If you have no other alternative, you might have to buy the book. *Books in Print,* found in most large public libraries and in very large book shops, contains publishers' addresses.

Some Major Research Journals in Education

You may also have to order particular issues of journals through an interlibrary loan system or write to the publisher. Some important journals in the field of education are

- *American Educational Research Journal*
- *Anthropology and Education Quarterly*
- *Child Development*
- *Comparative Education Review*
- *Educational and Psychological Measurement*
- *The International Journal of Qualitative Studies in Education*
- *Journal of Educational Psychology*
- *Journal of Educational Measurement*
- *Journal of Experimental Education*
- *Journal of Research and Development in Education*
- *Review of Educational Research*
- *Zimbabwe Journal of Educational Research*

Some Free Publications

The International Institute for Environment and Development publishes material on rapid and participatory approaches (see chapter 14). *RRA* (Rapid Rural Appraisal) *Notes,* a series of twenty-one volumes to date, is free to readers in the developing world. In 1995 the series was renamed *PLA* (Participatory Learning and Action) *Notes* and will be published three times a year. The address is

PLA Notes
3 Endsleigh Street
London WC1H 0DD
England

The African Research Utilization Network (ARUNET) is a regional network in Kenya, Tanzania, Uganda, Zambia, and Zimbabwe that is dedicated to bridging the gap between development research and the implementation of the results of that research. It provides training in participatory approaches and sponsors a free quarterly newsletter for readers in the region. For more information, contact

The Regional Secretariat
African Research Utilization Network
P.O. Box 43864
Nairobi, Kenya

"GRAY" LITERATURE

One category of information that does not fit neatly in with known and established archival material (like government statistics) or with published works is the so-called gray literature. This includes working papers, internal documents, house organs, annual reports, and so on. Unpublished reports and studies by major international agencies are an important source. Some bodies, such as the European Union, have online databases for their gray literature. In other cases, you have to know of a study's existence and write to the organization concerned, which may or may not provide it.

OTHER WRITTEN MATERIALS

Researchers use many other kinds of written materials, ranging from school records to newspaper articles to minutes of meetings. These can be very helpful, sometimes on their own (particularly in studying the past, when the people involved may not be living) or in combination with other research techniques. Chapter 12 looks at some of these.

Finally, do not overlook literary sources and materials that local people may have written, such as poetry or diaries. Remember our debate about facts versus meaning in chapter 2? You can use materials like these to bring your information to life and help people to get a feeling for what your facts mean. Mathabane (1994) is a good example. Also consider the power of these two instances:

We shall overcome
We shall overcome
We shall overcome, some day…

and

Question 10. Do you think you will ever overcome?

Yes _____
No _____
Don't know _____

IF "YES" TO QUESTION 10, ASK RESPONDENT

When do you think you will overcome?

Now _____
Some day _____

While a picture may be worth a thousand words, a poem, short story, or piece of music may convey more meaning than a thousand survey questions. Indeed, the main message that a thousand survey questions conveys is that you have not planned your survey well. Certainly you need to know how representative your information is, but you also need to know, and to show, what it means. Literary and artistic works can help to make your case.

Once you are satisfied that you have what you need from existing sources, chapters 9–14 will help you to make decisions about how to choose other information gathering techniques (step 8, box 3-1).

FURTHER READINGS TO HELP YOU

Colclough, C., with K.M. Lewin. 1993. *Educating All the Children: Strategies for Primary Schooling in the South.* Oxford, U.K.: Clarendon Press.

Domschke, Elaine, and Doreen S. Goyer. 1986. *The Handbook of National Population Censuses: Africa and Asia.* New York and London: Greenwood Press.

Khoudari, K. 1993. *Approaches to Improve Female Attendance to Primary School: A Review of Recent Bank Experiences.* Washington, D.C.: World Bank.

Kpedekpo, G.M.K., and P.L. Arya. 1981. *Social and Economic Statistics for Africa.* London: George Allen & Unwin.

Mathabane, Mark. 1994. *African Women: Three Generations.* London: Hamish Hamilton.

Odaga, Adhiambo, and Ward Heneveld. 1985. *Schools and Girls in Sub-Saharan Africa: From Analysis to Action.* Discussion Paper. Washington, D.C.: World Bank, Africa Technical Division.

Stewart, David W. 1993. *Secondary Research: Information Sources and Methods,* 2nd ed. Newbury Park, California: Sage.

What the surveys and structured interviews are good for:

- Getting answers to the same questions from many people.
- Relating answers to one question (sex?) to those of another (level of schooling?)

Examples:

- What are the educational needs of market girls in a town?
- Do mothers' views on various aspects of girls' education differ from those of fathers?
- What do teachers think are the main reasons why girls are leaving school? What do they think would help?

Sample study:

Okumu, Mary I., P. Youri, and African Medical and Research Foundation. 1994. *Female Adolescent Health and Sexuality in Kenyan Secondary Schools: A Survey Report.* Nairobi, Kenya: African Medical and Research Foundation.

9

Surveys

summary

***Surveys** are useful when you want responses to the same questions from a number of people. However, many of the assumptions upon which surveys are based rely on Western concepts. You must adapt the rules and processes to your own society.*

*Surveys take two forms: **structured interviews**, which the researcher administers, and **questionnaires**, which respondents fill in themselves.*

***Mini surveys** (small number of questions, small number of respondents) are useful for short projects and can be analyzed easily without a computer.*

Work out the information you need by consulting your research outline or using a similar procedure.

Decide to whom the survey will be given, and whether you will ask everyone in the group or a sample.

Avoid poor questions and poor answer choices: inappropriate questions and answers, double questions, loaded questions and answers, vague words, overly broad questions, and questions requiring second-hand information.

*Answers can be **open-ended** (blank spaces provided) or **forced choice** (answer choices provided). A survey may contain a combination of both.*

*When you are ready to design the survey, assemble the instrument: create a statement explaining the research to the respondent (a face sheet); plan the order of your questions; and use **filter questions**, which guide people through the interview. Decide how to prepare answers for counting.*

Pre-test the survey.

Select and train the interviewers if you are not working alone.

Administer the survey.

*Process the data: count the answers and do any **cross-tabulations** you need by relating a person's answer to one question to their answer to another. You can do this yourself or use a computer.*

SURVEYS AND QUESTIONNAIRES

One of the best ways to learn about using surveys is to be on the giving or receiving end of a bad one. Figure 9-1 is an example of a bad survey. Following the survey you will see how it is made worse by a poor interviewer.

Figure 9-1. Example of a Bad Survey

Greeting and Brief Introduction

Surname and Christian Name?

Age? (CIRCLE ONE) ______________________________

20-25

25-30

30-35

35-40

40-45

45-50

50-55

Sex? (CIRCLE ONE)

Male

Female

Do you have any children?

How many girls?

How many boys?

How many of the girls are in school? ____________

not in school? ____________

How many of the boys are in school? ____________

not in school? ____________

What is the main reason why your daughters are not in school? (CHECK ONE)

- too expensive ☐
- school too far away ☐
- the girls got pregnant
- the girls are married ☐
- other ☐

What is the main reason why your sons are not in school? ☐

- too expensive ☐
- school too far away ☐
- needed at home ☐
- other ☐

☐

Do you send your daughters to school and study sessions and school events regularly and supervise their school work?

- Yes ☐
- No ☐

Here's the interviewer (I) and a respondent (R):

I. Good morning. I am here from the ministry to ask you some important questions. Surname?
R. Good morning.

I. Surname?
R. What are the questions about?

I. The ministry wants to know why people aren't sending their children to school.
R. But I am sending all my children to school. Why have you chosen me?

I. Because this is a random sample.
R. Can't you ask the people in the next house? They don't send all their children to school. Besides, I myself am not an educated person. I can't answer your questions. And look, my animals have broken down the fence, I must save my garden.

I. This is more important. And anyone is intelligent enough to answer these simple questions. Name?
R. Will the ministry record my name in its books?

I. No. Surname?
R. Then why do you want my name?

I. Because it says "Surname________________" here on the form.
R. Well... my name is Phiri.

I. What is your Christian name?
R. But I am not a Christian. No one in the village is.

I. What is your first name then?
R. Joseph.

I. Age?
R. Forty-five.

I. Wait a minute. Where do I put that on the form? It says here 40-45 and 45-50. Which is it?
R. I can't help you.

I. Sex?
R. I am sorry, this is unacceptable. I cannot discuss these matters with a lady. I must leave.

I. I mean WHAT IS your sex? It asks it here on the form.
R. What do you mean what is my sex? What do I look like?

I. Number of children?
R. Eleven.

I. ELEVEN? That's too many. What about your poor wife?
R. I have two wives.

I. That's even worse! How many daughters?
R. Eleven.

I. How many sons?
R. None. I already said I have eleven children, and they are all daughters.

I. Well, it asks it here on the form. This was written by an eminent professor at the university. How many of them are in school?
R. All of them.

I. How many of your sons are in school?
R. I told you. I don't have any sons.

I. What is the main reason why your daughters are not in school?
— too expensive
— school too far away
— the girls got pregnant
— the girls are married
— other
R. Oh, the school is certainly too expensive all right. That's a very good reason.

I. I don't know where I'm supposed to put that answer. These boxes are all mixed up. Anyway, what is the main reason why your sons are not in school?
— too expensive
— school too far away
— needed at home
— other
R. I told you—oh well—"other."

I. Wait. I see here you have no sons.
R. Then why did you ask me the question?

I. Do you send your daughters to school and study sessions and school events regularly and supervise their school work?
R. Oh, yes, regularly sometimes. Other times, not. And my wife supervises the school work.

I. "Yes" or "no"? I need to fit the answer into this box.
R. "Yes."

Some of the problems in the interviewing technique and the survey form may be obvious to you already. By the end of this chapter, you should be able to identify other weaknesses in both.

The survey has been the backbone of social science research in developing countries for several decades. International agencies, national governments, and academic researchers are all heavily involved in large surveys such as the Living Standards Measurement Study, the Social Dimensions of Adjustment Survey, to name but two. However, the survey has also been a bone of contention among social scientists. The debate in chapter 2 about approaches to knowledge and methods of analysis really comes alive when social scientists start discussing the merits and demerits of the survey.

Development researcher Ingrid Palmer has summarized the argument about the empirical, hard questionnaire versus the qualitative, holistic approach:

> Charges fly that the first gives a historical, snap shot material, is weak on relations and processes, accumulates excess information which clogs computers and litters the floor of the cutting room, and stupefies the mind during the interpretation stage. The other side claims that facts is facts, that qualitative interpretation lacks scientific rigor and is prone to non-representativeness (Palmer 1981, p. 34).

For you, an even more serious issue may be the problem of applying surveys to non-Western societies. This is one side of the issue:

> A rural Third World Survey is the careful collection, tabulation and analysis of wild guesses, half-truths, and outright lies meticulously recorded by gullible outsiders during interviews with suspicious, intimidated but outwardly compliant villagers (Chen and Murray 1976, p. 241).

By contrast, another researcher says:

> Scholars, government officials, and commercial interests in the developing countries are increasingly recognizing that survey research methods provide the only means by which systematic information can be collected and analyzed for a wide range of purposes (Mitchell 1983, p. 219).

Many misconceptions have led to this impasse: a common assumption on the part of the experienced and inexperienced alike that the survey is the best, most scientific way of getting objective information; that a survey is a standardized, universally applicable tool; and that doing a survey is a simple and quick process. As a result, many people believe that whatever methods you use, it is best to begin with a survey to get a general picture; that if you can use only one technique, it should be the survey; and that you should verify the results you get from other methods by a survey. In effect, they are saying use a survey at the beginning, at the end, or alone, but use at least one.

In reality, the survey requires a good deal of expertise and a big investment of time. Like every other research technique, it has a specific function: it tells you what people say they do, think, or feel if you ask the right questions, if they understand what you are asking, and if they are able and prepared to give you answers. If you want other dimensions of reality, you have to use other techniques as well. As we saw in part II, just because the responses to a survey can be converted into numbers and percentages does not make them more valid or accurate. The survey will provide information on selected variables, but not their context, and the replies, when added up, will not provide a holistic picture, but a set of responses to specific questions.

To add another caution, the survey's structure, language, order and content of questions, mode of administration, and assumptions about how people respond are all based on the cultural beliefs of societies that use questionnaires most frequently, that is, Western societies. Sometimes they can be deeply mystifying or alienating elsewhere. Designing or adapting questionnaires for use in other societies, selecting and training appropriate interviewers, and administering the survey all require additional skills that standard reference books may ignore. To read more about some of these problems, look at the works of Bulmer and Warwick (1983), Chen and Murray (1976), or Stone and Campbell (1984).

A survey is a specific tool that when used for the right reasons does the job better than anything else, and when used for the wrong reasons is a waste of everyone's time, effort, money, and hopes.

Some of the right reasons for using a survey are:

- The nature of the problem is such that it is the best approach.
- You need a broadly based response to a specific set of questions or items.
- You want to compare the results from one group with that of another. Using the same survey for both groups lets you do that.

Some of the wrong reasons for using a survey are:

- It seems the most "scientific" way to get information.
- It seems quicker and easier.
- You do not know any other way to get the information.
- No one will believe your results unless you use a survey and produce some numbers and percentages.

In this chapter we will use the word survey to refer a standardized set of questions put to a number of respondents. Surveys can take two forms: a **questionnaire**, or something that the respondent fills in, or a **structured interview**, whether face-to-face or over the telephone, in which the researcher fills in the answers. There are also other kinds of interviews that are more individually tailored to each respondent or situation, such as **semistructured, group**, and **informal** interviews. See chapter 11 for a discussion of these.

Of the structured types of surveys you are most likely to use mini surveys in the form of structured interviews and tightly focused questionnaires. The guidelines for creating both are similar. The differences arise from the extra care needed to construct a questionnaire, because you will not be present to help the respondent.

MINI SURVEYS

Regular surveys, which are large in terms of numbers of respondents, numbers of questions, or both, are labor intensive to design, administer, and process. In many countries serious problems may arise in connection with sampling.

If such a survey is going to be a central feature of your research, you should try to get help from a specialist in survey design, sampling, coding, and analysis to avoid some of the pitfalls that can and do happen even to experts. Several good sources on surveys and questionnaire, are Casley and Kumar (1988) and Casley and Lury (1987).

More likely you will be carrying out what development research experts Kurt Finsterbusch (1976) and Krishna Kumar (1990) have called a mini survey. Mini surveys are carefully focused on a specific topic; contain only fifteen to thirty questions; are given to a small sample of twenty-five to seventy people; and usually use more closed than open-ended questions; that is, they use questions that force the respondent to choose from a small set of alternative answers, rather than inviting a freely expanded comment.

Some uses of the mini survey are

- To get a picture that will help you to design the next stages of your research
- To assess the feasibility of a project
- To get reactions from beneficiaries
- To evaluate projects.

A mini survey can be completed in three to seven weeks, whereas many large surveys can take a year, and often much longer, for the whole process to be completed and the results analyzed. Technically, mini surveys for development research are usually structured interviews rather than questionnaires, because questionnaires exclude people who cannot read. Interviews have the added advantage of allowing you to help people through a process that may be culturally alien, confusing, or intimidating.

A mini survey has some disadvantages, which are probably obvious from the above. The main one arises from the size: if you want to claim that your results can be applied to a much larger population, you will have problems, particularly if you use nonprobability sampling (see chapter 6). Also, some statistical tests do not work with the small numbers you will find in your study. But while a mini survey may not give you great precision, it may be good enough to give you a general picture of the situation, of trends, and of patterns. If you need this in a format that can be easily converted to numbers and percentages, a mini survey may be the answer, either on its own or as a complement to other research techniques.

Survey design, administration, and analysis have to be carried out carefully, or the results will be of little or no use. For the best results follow the nine steps explained in the following sections.

Step 1: Clarify Your Objectives

As you would in any piece of research, ask yourself: "What do I want to find out?" "Why?" "Is this technique the way to get this kind of information?" "When I get the answers to these questions, will they meet my needs?"

Step 2: Find Out What Else Has Been Done

Someone may already have done a survey that is good enough for your purposes, that will provide you with some useful questions, or that will allow you to build on existing work and go a step further, but do not automatically use someone else's questions unless you are convinced they will work for you. Of course, you face a predicament if you want to compare your results with someone else's, because you will have to use the same questions as the other researcher did. In the process, you may sacrifice comparability for local meaningfulness: some of the questions may not mean the same thing to the people you are studying as they did to the other researcher's study group. However, if you adapt the questions for the country you are working in, then your respondents are answering different questions.

Another possibility is that a standard scale or measure has been developed for your topic (see chapter 10). These can present the same problems described in the last paragraph.

Step 3: Choose the Respondents

First, you must decide whether you are going to ask your questions of the entire group, whatever it might be (for example, all the girls who completed primary school in a district, if the district is the unit you are studying) or just some of them. The first is a population or universe. The second is a sample. If you are using a sample, you must choose the type of sample. Reviewing chapter 6 will help you decide. Remember the warnings about nonsampling errors in that chapter. They have often been a more serious source of error in non-Western surveys than sampling errors (see Bulmer and Warwick 1983 or Stone and Campbell 1984 for a discussion).

Step 4a: Develop the Questions

There are no universal, all-purpose questions. You cannot even assume that you should start by asking respondents their name, age, and sex because you may not need to know those things. So where do you get your questions? If you are using a research outline approach (see chapter 4), look at the points in the outline to see which of them might be studied through a survey. Look at these points, taken from the outline we developed in chapter 4. Which of these could be studied through a survey?

Grade 6 girls: general characteristics

1. Age
2. Area of residence
3. Ethnic or tribal group
4. Religion
5. Marital status
6. Occupation(s)

X District

1. Location
2. Division
3. History
4. Size

You could get individual responses to the first group of points, but a survey would not be useful for the second. You do not want individuals' opinions of the size of the district; you want to know its actual size.

When you have selected the points for study, write each one on its own card or piece of paper, and on the back write the question that you will use for the point. Then you can rearrange the cards to put them in the best order (we will return to this later).

If you do not have an outline, think about the topic you need to study. Let us say you are trying to develop an evening course for market girls. Consider what you need to know. To help yourself ask "who?", "what?", "where?", "when?", "why?", and "how?" and you will begin to get your questions as in the box below.

First the girls:
Who are they?
What are their ages?
Where do they live?
When did they leave school?
Why?
How are they making their living now?
Then the course:
Who would attend the courses?
What courses do they want?
Where could they attend them?
When would they be free to go?
Why do they want particular courses?
How would they get there?

For each of these points, you can ask more detailed questions using the same method. For "when would they be free to go?" you might want to know "how often?" and "whose permission do they need?"

Of course, the approaches mentioned so far will lead to questions that *you* think are important. However, you will almost certainly have overlooked important areas in your planning or emphasized certain issues more than the situation warrants. **Open-ended investigation** will help you here. Use some of the approaches discussed in chapters 11-14 to get people to talk about their concerns and perspectives. This will make your survey focus, questions, answer choices, and language more relevant.

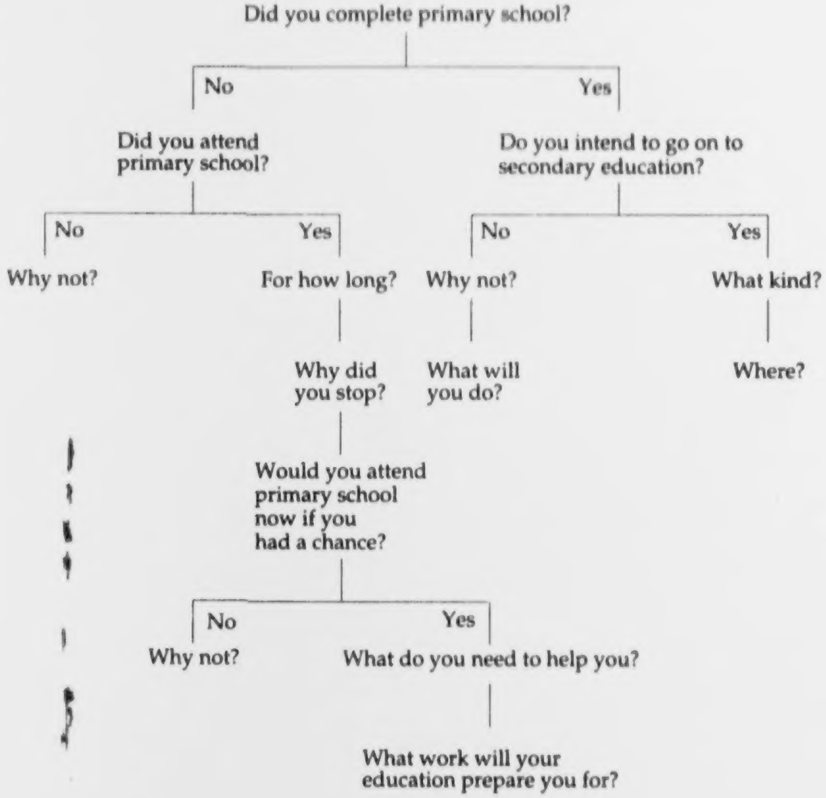
Further questions will occur to you when you think of the possible answers people can give you.

Plan the direction your survey will take by making a **flow chart**. If you ask "Did you complete primary school?", you want to plan what to ask next depending on the possible responses (figure 9-2). You can use the flow chart to decide how many of the lines of inquiry are worth pursuing.

As you are planning the questions, try to picture the people who will be answering them and their circumstances. For example, some of the girls will be older, with children; some will never have been to school; some will have other employment in addition to marketing; some will already have taken some courses; some may only be out of primary school temporarily. Knowing these facts will help you to include other important questions. Will the girl need child care facilities? If a girl has taken a course and dropped out, why?

You learn to write good questions by thinking things through, knowing about the people who will answer them, and making mistakes. You will usually discover these after the survey is over, and you will be astonished at how stupid they are. Nonetheless, you can learn in advance from other people's stupid mistakes.

Figure 9-2. An Example of a Flow Chart


Did you complete primary school?
No
Yes
Did you attend primary school?
Do you intend to go on to secondary education?
No
Yes
No
Yes
Why not?
For how long?
Why not?
What kind?
Why did you stop?
What will you do?
Where?
Would you attend primary school now if you had a chance?
No
Yes
Why not?
What do you need to help you?
What work will your education prepare you for?

In addition to those described here, many other mistakes are possible, some of which you will probably invent on your own. A good rule of thumb to remember is that the average IQ of any human being seems to drop about forty points when designing a survey, so don't be disheartened if things go a bit wrong.

ASKING INAPPROPRIATE QUESTIONS

Wording can be equally meaningful to both parties without the meaning being shared. Among the Baganda of Uganda, "intelligence" includes wisdom, slow thoughtfulness, and saying the right thing. Obviously, a European and a Bagandan would recognize the concept of intelligence, but their meanings would not entirely overlap.

Lack of familiarity with the situation, the particular group, or the culture can lead to asking the wrong questions, giving poor answer choices, or constructing an awkward survey form. You can guard against the first two by doing your homework, but the last is more subtle: many of the pieces of advice given in this chapter are inappropriate somewhere in the world. In some places, talking about the future is presumptuous, because the future is in God's hands. In other places, hypothetical questions ("If you had household help, would you be able to send your daughter to school?") are meaningless. Even a "simple" question can be misunderstood: Stone and Campbell (1984, p. 31) asked people in Nepal: "Have you heard of abortion?" Some people took this to mean did they know of anyone who had one or who had done one rather than did they know about the concept.

Using inappropriate language is another source of poor questions. Nervous novice researchers often feel that using pretentious language ("Do you regard unilateral school board interventions in curriculum assessment as being productive?") will make their respondents more respectful and cooperative, but all it will do is annoy and confuse them. However, if you are dealing with people who use a specialized language, such as technical words, you need to use them or the respondents will assume that they are wasting their time on an amateurish effort.

Remember that your survey may have to be translated into a local language. Have it translated by a bilingual person whose first language is the one in which you will finally present the questions to your respondents. Then as a check, try to have the questions translated back to the original by a bilingual person whose first language is the one in which the questions were first drafted. If it says what you want, use the first translation as your survey. It may not be easy to find people with these linguistic skills. In that case, work closely with the person who is translating from your language into his or her own so that your ideas and intentions are clear.

Surprising things can happen in the translation process. Roger Mitton (1982, p. 64), a specialist in distance education, wanted to ask "What do you do on Sundays that is different from other days?", meaning "What do you do on Sundays that is different from what you do on other days?" This was translated into Sesotho as "What do you do on Sunday, which is the Lord's day?" A lot of people said they went to church. This seemed to be the "right" answer.

Do not be surprised if the translation is fine, but still does not get you what you want. The words may now be correctly translated, but they may not evoke the same ideas or feelings among the people in your study: you want *conceptual equivalence*, not simply *lexical* (word) equivalence. A substantial body of literature is available on back-translation (see, for example, Brislin, Lonner, and Thorndike 1973 for good advice).

Using inappropriate or irrelevant concepts is even more serious. These can occur even when no translation is involved. Words like "income," "household," or "employment" mean something entirely different from one place to another. A body of literature exists on what constitutes the household in different societies. When you ask what employment a person has had in the past five years, what do you really want to know? Ask that instead.

ASKING TWO QUESTIONS IN ONE

Sometimes one question is actually two. "As part of its gender sensitization program, the Ministry of Education is now taking on more women teacher trainees than men. What do you think about this program?" is two questions: "What do you think about the gender sensitization program?" and "What do think about the fact that more women than men are being taken on?" If someone says, "I disagree," is it with the program, the extra numbers of women, or both?

ASKING LOADED QUESTIONS (QUESTIONS THAT BIAS THE ANSWER)

The very fact that you ask a question in the first place tells the respondent that you attach some importance to the subject. If a major part of your survey is on gender-sensitive textbooks or on the expansion of technical subjects for girls, your respondents realize that an "educated" or "official" person sees this as important. Their replies may be affected, even though the subject may not be important to them. So questions are already loaded, but you can take care to reduce other ways of introducing bias.

If you begin a question with "Don't you think...?" or "Wouldn't you say that...?" you are setting up the respondent to agree. If you invoke authorities or use pejorative words—"The imam welcomes the president's call for radical feminists to control themselves. What do you think yourself?"—don't expect much disagreement. Calling initiation ceremonies "female genital mutilation" when local people call it a "circumcision" is going to get you off on the wrong foot, too. Often, loaded questions presuppose something that may not be true: "Why do you like your school?" "Why do you think it is important for girls to get an education?" "How do you think we should expand the curriculum?"

Sometimes, researchers deliberately construct a question that appears to presuppose something. If you are trying to find out what people do not like about your program or project, you can ask "What do you like about the project?" and then "What don't you like about it?", and people may feel easier about making criticisms.

Asking a question that appears to have a "right" answer is pointless: "School pregnancies appear to be increasing at a very alarming rate. Is this a cause for concern?" Or, "Did you enjoy the course you took with us?"

Answer choices can also bias the replies, for example, consider the following question:

If a male teacher has had sexual intercourse with a female student

a. The punishment should be more severe than it is now............1

b. The punishment should be less severe than it is now...............2

c. The punishment should fit the crime..3

Most people will choose "c." Some will think it is the same as "a" and others will think it is the same as "b."

USING AMBIGUOUS OR VAGUE WORDS OR PHRASES

One of the major assumptions of a survey is that all respondents are answering the same questions. However, if the questions mean different things to different people, this is no longer the case. Ambiguous or vague words and phrases are one cause. "Frequently" can mean daily to one person and annually to another. Thus, "Do you bathe frequently?" can truthfully be answered "yes" by two people, but you would probably prefer not to share a seat in the bus with one of them.

"Do you think secondary-educated girls are *more successful*?" "Do you revise your lessons *often*?" "*All things considered*, would you like to live *nearer* to the school?" "Do you attend the parent-teacher meetings *regularly*?"

ASKING QUESTIONS THAT ARE TOO BROAD

When you are planning your survey, you might ask people some broad questions such as "What do you think of the school system?" to see what dimensions of the situation are most important to them. Their answers will help you to focus the questions you ask on the final version of your survey and to omit issues that appear to be irrelevant. Asking such a broad question on the survey itself, however, is not very useful. Some people will criticize the ministry for raising fees; others will say they like the new curriculum better than the old; and others will say that when they were young and the world was run correctly, the teachers were at least sixty-five years old, whereas now they appear to be about eighteen. Decide instead what aspect of the school system you want people to comment on and phrase the question more precisely: "What do you think about the new plan for paying fees after the harvest?"

ASKING FOR INFORMATION PEOPLE DO NOT HAVE OR WILL NOT BE ABLE TO REMEMBER ACCURATELY

Even if people do not have the information you seek or cannot recall it well, they will often give you an answer anyway, and you have no way of judging its accuracy. One researcher (White 1984, p. 20) looking at the ability of people in rural Java to recall hours of income-producing work found that asking people twenty-four hours after finishing the work produced one set of figures; thirty days later they recalled only about two-thirds of the hours; and one year later, between 43 and 60 percent of the hours.

ASKING FOR SECOND-HAND INFORMATION OR OPINIONS WHEN YOU NEED DIRECT INFORMATION OR FACTS

"Why don't your neighbors send their children to school?" should be asked of the neighbors themselves. "What percentage of parents would send their girls to middle school if one existed?" will tell you people's opinion about the percentage, not what it is.

QUESTION CHECKS

Sometimes intentionally, and sometimes because of poor questions, people will answer questions incorrectly. If people are intent on deceiving you, it is pretty difficult to catch, but you can insert **question checks** for some items: you can ask, for example, "Do you attend the parent-teacher meetings?" Let us say that 75 percent of the respondents say "yes." Later in the survey you can ask: "On what day is the parent-teacher meeting held?" If only 23 percent of respondents know the answer, you know something is wrong.

Step 4b: Develop the Answers

Once you have got the questions, you have to think about the answers. It is often said that good lawyers, when cross-examining a witness in court, never ask a question unless they already know the answer. In a survey, you do not have to know *the* answer, but you have to know the possible answers so that you can decide how to handle them.

OPEN-ENDED OR FORCED-CHOICE QUESTIONS

Your questions will either be **open-ended** (blank spaces are left for answers) or **forced-choice** or **closed** (you provide the answer categories).

Open-ended questions allow more freedom for the person replying, but are more difficult for you to process when the survey is over. You have to read all the answers, decide what categories they include, go back and sort the answers into the categories, and then count them. Open-ended questions are suitable when

- You do not know enough to provide the categories
- You want to see what people choose to say themselves
- The material is intimidating or sensitive (research—in Western societies—shows that people will report socially unacceptable behavior more readily when asked in an open-ended question).

Forced-choice questions require that you know enough about the situation to give relevant choices. This takes a lot of preliminary work, but once the survey is administered, you can process forced-choice answers quickly simply by counting the answers in each category, either manually or with a computer. Make sure your answers are exhaustive (cover all the possibilities) and exclusive (do not overlap). For example,

Sex of teacher:

Female	1
Male	2

"Female" and "male" are examples of exhaustive and mutually exclusive answers. There are no more possibilities, and everyone will fall into one or the other. (In a face-to-face interview, you do not ask this question, of course; you figure it out for yourself.)

An example of not being inclusive enough would be

What work do you do after school?

Sweep ☐
Work in the fields ☐
Look after children ☐
Cook ☐

Such activities as fetching water or fuelwood, washing dishes, marketing, and carrying food to people have been left out. You can put in a category called "other," but you will not know what it includes. A good idea is to add

Other ☐ (Explain ____________________________)

Some questions can have as a final category, "Don't know" or "Anything else?" Be sure you are not using these categories to save time when designing the survey, because they will add time when analyzing the results.

A very common mistake of not being exclusive enough is overlapping number categories:

Age: (Circle One)
10–15
15–20
20–25

Let's say you are fifteen. Which one do you circle?

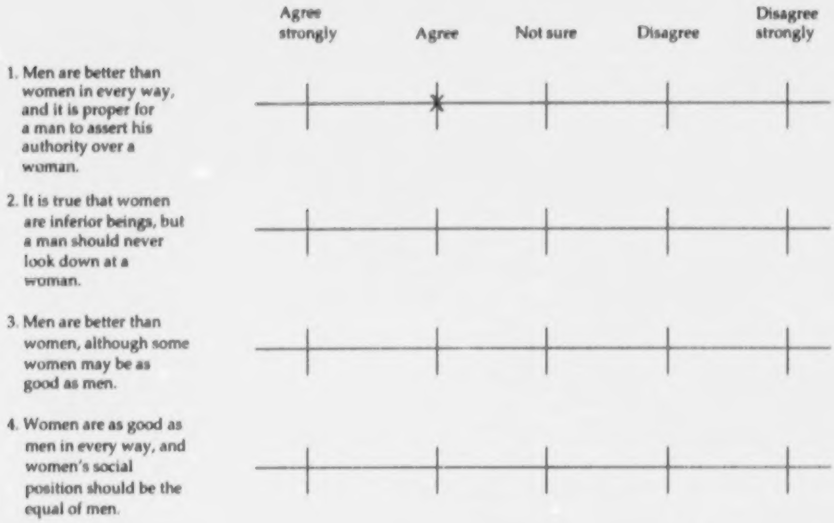
Forced-choice questions can include **sliding scales**. How would you rate the presentation of women as leaders in the Primary Six social studies textbook?

very poor ☐
poor ☐
fair ☐
good ☐
very good ☐

You can use words like always, most of the time, sometimes, very rarely, never as categories to describe the frequency of something. Another common set of categories is various stages of agreement: categories is strongly agree, agree, disagree, strongly disagree.

More extensive scales are also common. The example presented in figure 9-3 is from Dawson's (1967) Traditional-Modern Scale, which he used in West Africa. An "x" is inserted at the appropriate intersection of lines.

Figure 9-3. Dawson's Traditional-Modern Scale

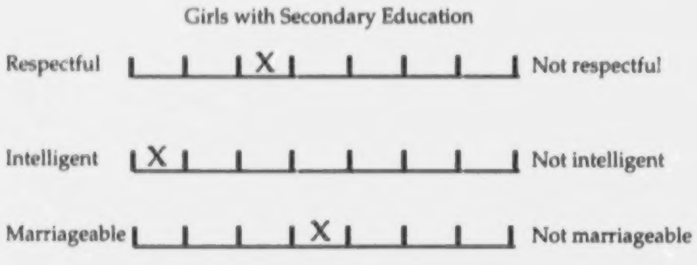


1. Men are better than women in every way, and it is proper for a man to assert his authority over a woman.
2. It is true that women are inferior beings, but a man should never look down at a woman.
3. Men are better than women, although some women may be as good as men.
4. Women are as good as men in every way, and women's social position should be the equal of men.

Source: Dawson (1967).

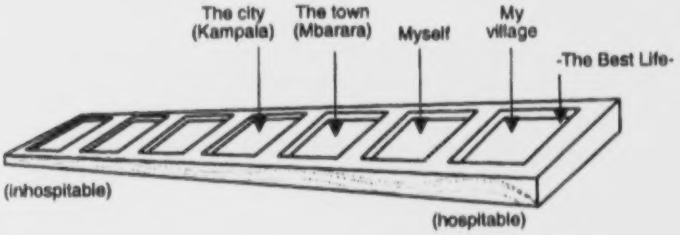
Another way of showing degrees of response is to use an adaptation of the Semantic Differential, developed by Osgood, Suci, and Tannenbaum (1957) (the original purpose of this scale is more sophisticated than the one described here). Concepts, presented in polar opposite terms, are placed at the left and right of a seven-point scale, and the respondent is asked to rate people, objects, places, and so on along the scale for each concept (figure 9-4). For example:

Figure 9-4. Example of Osgood's Semantic Differential-Type Scale



Other pairs of choices are presented on the same page, with the scale redrawn for each pair. You might use the same pairs for girls who left school before secondary level or girls versus boys, and so on. Schensul (1969) adapted this as a board game for people in Uganda (figure 9-5). The use of a board like this allows use of the Semantic Differential with nonliterate people.

Figure 9-5. Schensul's Adaptation of the Semantic Differential



Source: Schensul (1969).

CATEGORIZING THE ANSWERS

When thinking about the answers, you should also think about making the completed forms easier to deal with. If you use open-ended questions, they might look like this:

What form did you complete in school? ____________________

What are the responsibilities of a daughter to her parents?

____

____

For forced-choice questions, you have probably noticed that the examples in this chapter have been laid out in several ways. You can ask people to put a mark in the box beside the right answer, circle the answer, or choose the number of their answer.

A forced-choice question might look like this:

What form did you complete in school?

None	☐
First	☐
Second	☐
Third	☐

But you can make counting the answers easier if you give each choice a number. If you are going to use a computer to analyze the results, you will have to do this, but even if you are not, it will help.

What form did you complete in school? (CIRCLE ONE)

None	1
First Form	2
Second Form	3
Third Form	4

CIRCLE ONE is written in upper case letters as an easily visible instruction to the interviewer.

WRITING THE QUESTIONS

Now write out your questions in such a way that when the researcher reads them out, they sound natural, like spoken rather than written language. This, for example, is written English in many countries: "I wish to address a number of questions to you. However, I shall be pleased to answer any queries you might have first. " Spoken colloquial English would be more like: "I'd like to ask you some questions. Is there anything you'd like to ask me first?" Read your questions aloud to see how they sound.

The following guidelines for writing questions were adapted from work by cross-cultural research experts Brislin, Lonner, and Thorndike (1973), who created them to help in translating questions from one language to another. But they are useful even when you do not have to translate.

- Use short, simple sentences of less than sixteen words. However, sensitive questions may require a softener. ("Some girls find that for one reason or another, they need to get money from older boys or men. Have you ever found yourself doing this?")
- Use the active rather than the passive voice: "Should the teachers discipline the students?" rather than "should discipline be carried out by the teachers?"
- Repeat nouns instead of using pronouns: "When the teacher saw Modu, he was terrified." *Who* was terrified?
- Avoid metaphors and colloquialisms: "Abdullahi and Ahmed agreed, but Mariama thought that was a horse of a different color."
- Avoid the subjective mode, such as verbs with could and would: "If the school could improve its security system, would people send more girls?"
- Avoid vague words such as "nearer," "often," and "frequent." "Would you like to live nearer to Kampala?"
- Avoid possessive forms where possible: "Khadija's sister took her request to her teacher." *Whose* request, *whose* teacher?
- Use specific rather than general terms: the chief, the imam, rather than the authorities, the soccer club, the debating team, rather than extracurricular activities.
- Avoid words with two different verbs if the verbs suggest two different actions: "Should villagers attend and challenge the teachers at the parent-teacher meetings?"

Many more could be added to this: for example, do not write in double negatives: "Would you find it impossible to believe that your daughter wasn't giving enough time to her studies?"

A vast literature on writing questions is available, much of it very helpful because it is based on question variations that have been tried on large numbers of people. Some of the pointers, however, may not apply in your society.

Finally, you can use a guide like the following to get some perspective on the value of each question to your research (adapted from Leedy 1989):

Outline point	Question	Answer form (open, forced choice)	What will the answer tell me?	How does this relate to my research aims?	Do I need to use a question check?	What is the question?	How does this provide a check?

When you pre-test the questions (discussed later in the chapter) you will learn more about how potential respondents evaluate your questions.

Step 5: Assemble the Instrument

You are now ready to assemble the various parts of your survey.

THE FACE SHEET

Begin by making a **face sheet**. This will contain the following kinds of information, adapted to meet your circumstances.

Title of Survey	Serial Number

Interviewer's Name
Date
Reason for no interview [if no interview can be obtained]

Introduction:

My name is (name). I work for World Aid, which helps to set up courses for people who have left school. We would like to make our courses more useful to people.

Chief (name) has given us permission to visit the village and ask people what courses they need. I would like to get your opinions. I do not need your name, and I will not discuss your answers with anyone else. Is there anything you would like to ask me before we begin?

The serial number helps you to keep track of the respondent's survey form. If seventy-five people are being interviewed, the first person will be numbered "01." You can keep the respondents' names on a master sheet, along with their numbers, in case you need to follow up the interview. You can also enter it into the computer if you use one. Keep your introduction short.

FILTER QUESTIONS

Sometimes your study will contain people who have very different characteristics or experiences, and not all your questions should be answered by each person. You may have to use **filter questions** to guide people. For example:

1. Did you ever attend primary school?

Yes ☐ → Question 2
No ☐ → Question 8

2. Did you complete primary school?

Yes ☐ → Question 4
No ☐ → Question 3

3. Would you like to complete primary school?

Yes ☐
No ☐

This keeps people who did not go to primary school from going on to tell you they completed it, and people who completed it from being asked whether they would like to complete it. If this format is not clear enough for your interviewers, try other methods: for example, after question 1, you can write: "IF RESPONDENT NEVER ATTENDED PRIMARY SCHOOL, GO TO QUESTION 8."

If you do not plan your filter questions properly, you may be sure that at least one boy will answer questions on his pregnancies, or one girl will say she is still in school and in the next question will give you the reason why she left. Even worse, your respondents may simply give up. If you know that the groups you are interviewing are so different in their experiences that you will have to include large numbers of filter questions, making the survey difficult to administer, you might consider developing a separate survey for each group.

ORDERING THE QUESTIONS

Order your questions. On the principle that once people invest some time in a survey, they are less likely to balk at unattractive questions, ask general, open-ended, easier, more interesting, less personal, and less sensitive questions first. Sensitive questions differ from one culture to the next: many Westerners are used to the idea of giving details of age, sex, number of children, and so on while bristling at questions about income, but people in a study in Ghana, for example, were prepared to discuss income and assets, but not numbers of children (apparently fearing a tax) (Devereaux 1989). There is not a lot of point in trying to get around this by assuring people that the information they give is confidential. You must assure them, but often they do not believe you and think you are amazingly naive for believing it yourself, or else they start having second thoughts about the wisdom of discussing the matter if you, an "expert," think it is such a confidential matter. (Of course, it still must be kept confidential, whatever people believe.)

Keep questions on related items together, and when you change the subject, use a bridge: "Now I'd like to talk to you about something else" or "Now I'd like to ask you a little bit about the village."

You do not automatically need names (or numbers) on surveys, but you do if you want to follow people up later. For example, after a questionnaire you might write to thank people who replied, and remind people who have not that you still need their replies. Or you may want to compare survey results with other materials from the same respondent, or you might be doing a long-term study on the same people and need to keep track of them. Sometimes people want to be anonymous, but sometimes they feel their responses are meaningless when separated from their identity. When you need names, you can create a final page. Say "Now I'd like to ask you a few questions about yourself," and get the respondent's name, age, and anything else you need and that has not already been asked.

CLOSING THE SURVEY

On this final page, close your survey by asking once again if the respondent has any questions to ask or anything to add. Thank the respondent. If there is going to be an occasion when people can hear the general results of your study, tell the person when and where you will do this.

Leave a space on this page for the interviewer to make a note of anything that happened during the interview that might have affected the results: "This woman would not answer questions about school fees because she said it was her husband's responsibility to pay them," or "Respondent was unhappy because she said a previous interviewer had paid her, and she stopped halfway through when told she wouldn't be paid."

Step 6: Pre-Test the Survey

Pre-test the survey on people who will not be taking the final version. One way is to ask five to ten people to sit down with you, answer the questions, and then give you comments about each question. A pre-test should help you to find out whether the survey

- Flows properly, is arranged in a workable way for the interviewer (boxes in the right places, enough space for answers, manageable filter questions) and asks the questions in an order that seems reasonable to the interviewee.
- Sounds good when read aloud.
- Does not take too long. For standard surveys, research in Western societies indicates that people are prepared to be interviewed for anything up to an hour, but mini surveys will require much less time. You will have to determine the time people are able and prepared to give in your own society. Experienced interviewers in your country should be able to help you.
- Is interesting to the respondent. If the questions are all "yes–no," or all involve ranking on a scale from one to seven, people will probably find even the mini survey a bit dull, but the biggest cause of disinterest will be if the questions have little or no bearing on the respondent's life. Sometimes you have to ask things that are not central to the respondent's interests, and in those cases you need to make the survey itself lively by wording the questions in a conversational way, varying the tasks the person is asked to do, and so on.

After the pre-test you need to discover the following:

- Were the questions clear to everyone?
- Did they mean the same thing to each person?
- Were people able/willing to answer them?
- Were the answer choices suitable?
- Did the questions/answers give you the information you need?
- How long did the interview take? Did people get tired or bored?
- Can you code the answers if you need to?
- If you are using assistants, did your instructions to them work? Have they any suggestions for improvement?
- When you look at the results, is there any information you will need that is missing?

Step 7: Train the Interviewers

The following sections cover the things you need to remember if you are using other people to help you.

CHOOSING INTERVIEWERS

When choosing interviewers, their personal characteristics—personality, intelligence, honesty, and ability to work with people—are far more important than their formal educational qualifications. A young woman who has completed middle school, or perhaps Form 3 of secondary school, could well be a better interviewer than someone with a degree from a teacher training college. Relate your selection of interviewers to the group you are trying to study, and the subject: teenage girls are not going to discuss female circumcision with a senior male interviewer, and men have sometimes refused to discuss agricultural or economic matters with a woman.

By the same token, try not to use people who are very involved with or seen to be associated with the topic. If you send known teachers out to ask about the value of education, people will hardly "insult" them by saying that they have more important priorities. The teachers themselves may have a stake in the findings, as well: for example, recording more people as wanting a new school may lead to getting one.

TRAINING INTERVIEWERS

You can help your interviewers by pre-testing your survey, writing out the questions exactly as they are to be presented, and writing all instructions throughout the survey very clearly in upper-case letters: for example, IF RESPONDENT SAYS "YES" ASK "WHY?" Use role playing for practice. You play the respondent, and ask the interviewer to administer the survey to you. Both you and the interviewers can also create some bad interviews and identify the mistakes. Create a difficult interview, one which is interrupted frequently, a household where no one is at home. If you are not familiar with the area and the interviewers are, this kind of role playing may help you to deal with things you had not thought of.

Decide whether the questions must be asked word for word, identically, by all the interviewers, or whether you will allow them to take a more informal approach, tailoring it to the situation. If you use an informal approach, practice that as well, so that the interviewers have a common understanding of how to do this while remaining faithful to your information requirements.

Interviewers should understand that their job is to make the respondent feel respected and comfortable. The interviewers should accept all answers neutrally, without displays of disapproval or shock. Lecturing the respondent is unacceptable. This is a survey, not a sensitization program.

Practice recording the answers. Pay particular attention to recording open-ended answers. The interviewer should record the answer verbatim, not in summary form. No two interviewers will summarize in the same way, and two answers summarized as "No" may be very different. For example: "If the new technical school is built, will you send your daughters?"

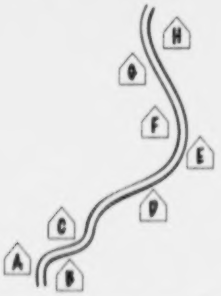
> Answer 1: "No, because I won't have the money."
>
> Answer 2: "No. Form 4 is enough for any girl. She should be learning how to look after a husband and children, not wasting time on things she's no good at anyway."

Prepare for all the circumstances you can anticipate. If people refuse to be interviewed or are never around, the interviewers should note this on the face sheet. If you are doing random sampling, tell the interviewers exactly what procedure to follow. Make sure they do not simply substitute one household for another. Box 9-1 presents a sample instruction from Mitton (1982).

Plan the human elements as well. Work with the interviewers on the best way to dress, how to approach the local leader(s), the courtesies expected, how to explain the work to interested people, how not to raise expectations that cannot be met, how to behave when not working, what to do if asked for money or gifts, and how to leave the area when finished. A team of Gambian interviewers working on problems of girls' education in The Gambia came up with a list of do's and don'ts for themselves (box 9-2).

Box 9-1. Example of an Instruction to Interviewers

Take the first house that you come to as you approach the village. Toss a coin. If it is heads, take that as your first house. If it is tails, take the next house as your first house. When you have visited your first house, decide which two houses are nearest to that house. Choose the further of the two. When you have visited that house, decide which two houses are nearest to it, not counting any of the houses you have considered already. Choose the further of the two. Carry on like this.



Example. (A) is the first house you come to. You toss a coin. It's tails, so you take (B) as your first house to visit. (C) and (D) are the nearest houses to (B), so you take the further one – (D). The nearest to (D), not counting (A), (B), or (C) are (E) and (F). You take the further one – (F). The nearest to (F), not counting (E), are (G) and (H). You take (H).

Source: Mitton (1982, p. 69).

Box 9-2. Example of Do's and Don'ts for Interviewers

See the village authorities on your arrival

Present cola nuts to chief

Greet people as you meet them

Ladies should not give hands to men unless they are welcomed to do so

In approaching elderly persons, take off your shoes

Don't look at elders directly when talking to them

For ladies: don't fail to cover your head, don't put on tempting dresses

Don't put on cap/hat when approaching elders

Don't send away a child who comes near you

Don't belittle their village by saying:

(a) you don't have hospital/market/school

(b) the village is dirty/small/etc.

Never smoke in front of elderly persons

Never hiss within the villagers' hearing

Never point at elderly people when talking/explaining

Don't ever make a promise to their problem

Don't be too tribalistic

Don't put food on the ground (as markers in making maps and diagrams outdoors)

Accept food gratefully

Thank people

Unless you are a Gambian, some of these guidelines will be unfamiliar to you. Every place has its own customs, and it is your job to learn them.

MAKING SURE THE CONDITIONS OF WORK ARE CLEAR

Do you pay by the hour, the day, or the interview? What about arrangements for accommodation and transport? Will the team work together in one place and move on together or work separately? What happens in an emergency? Your interviewers need to know the answers to such questions before starting work.

Step 8: Administer the Survey

Conduct the interviews at times that are convenient for respondents. Introduce yourself using the material on the face sheet. If people have questions, try to reassure them and put them at ease. Box 9-3 presents some advice on what to say in response to common questions.

Box 9-3. Typical Questions and Remarks Exchanged during the Initial Stage of an Interview

Interviewers frequently encounter a set of common questions at the beginning of an interview. Some typical examples are given below.

1. QUESTION: "Why did you pick me?"

ANSWER: "The purpose of this survey is to find out the views of people on ________. Since it is not possible for us to talk with every one, we have selected a few persons like you to help us out." (Interviewer can then add a sentence or two about the sampling process.)

2. REMARK: "I am too busy. Why don't you leave me out?"

RESPONSE: "It will not take more than 15 to 20 minutes of your time. However, if you are very busy now, please tell me the time when I can visit you again. It is extremely important that I have the benefit of your ideas and experience on this important subject."

3. REMARK: "I really don't know anything about this."

RESPONSE: "We are interested in your opinions and experiences and not in what information you may or may not have. I am sure that you will find the questions interesting and will be able to answer them easily. We have asked the same questions from many people who did not have any problem in answering them. I must mention that in a study of this type, there are no right or wrong answers to questions."

4. QUESTION: "Who's behind this?"

"This study is sponsored by the ______ project/program. Its purpose is to get ideas and information that will be helpful in improving its activities."

Source: Kumar (1990, p. 44).

Then ask the questions clearly and slowly. If people have trouble answering

- Repeat the question.
- Allow an expectant pause.
- Repeat the person's reply so far.
- Offer neutral comments, such as, "Why do you feel that way?" or "Anything else?"
- Ask for clarification: "I'm not quite sure what you meant when you said that 'girls are for marrying.' Can you tell me a little more?"

Check the completed survey forms periodically to catch problems. Are the interviewers filling them out correctly? Are one interviewer's survey results very different from those of others? Why? You can begin coding the survey forms now, if necessary.

Step 9. Process the Data

You have several choices in relation to processing your data. Counting the answers straight from the forms yourself requires no **coding**. Everything else does. This includes methods such as recording on large sheets and computerizing the results.

The approach you choose will depend on how much data you have, what you want to do with it, and whether you have access to and are comfortable with a computer. The best rule is "simplest is best." Use the least complicated method that still produces what you want. If you have done something as small as a mini survey, you should be able to count directly.

Before you do anything, figure out what information you want. You want the figures or percentages for each of your questions. These are called **frequency counts**. But what else do you need? Do you want to know how many of those who are female (question A) went to secondary school (question B)? This is called a **cross-tabulation**, or cross-tab for short. Think of your report and picture any tables you will need. Make up the blank forms or **dummy tables** as shown in table 9-1. This way you will not be counting things that you do not need.

Table 9-1. Example of a Dummy Table

Level of schooling				
Sex	*Primary*	*Middle*	*Second level*	*Third level*
Female				
Male				

If you have a large number of survey forms, a large number of questions, or want to do extremely complex analysis, you should use a computer. Programs such as the Statistical Package for the Social Sciences (SPSS), SPSS^{X}, or the Statistical Package for the Personal Computer (SPPC) will do the work very quickly once you have the material in proper form. However, putting the material in proper form is time consuming, and for small surveys may take more time than simply doing all the processing yourself.

Because all approaches evolved from the practice of doing your own counting, we will look at that first. If question B is

"What is the highest level of education you have attended?"

Primary	1
Middle	2
Second Level	3
Third Level	4

you can sort the forms into four piles and count the answers. You can then keep them in these piles to look at what is recorded for question A: "Sex of respondent." How many of those in the primary pile are male? How many female? You can then fill in the dummy table. You might want to look at other questions as they relate to level of education: how many primary-educated males said "agree" to question 12?

12. Education is more useful for boys than for girls

Agree	1
Disagree	2
Don't know	3

If you are not doing cross-tabulations for questions, you may simply want to keep the forms all in one pile and record the answers on forms like this:

Question 4	Yes	𝍸 𝍸 𝍸 III
	No	𝍸
	Don't know	I
	Not applicable	𝍸 𝍸 II
	Incomplete	II

Some people will not have answered the question because a filter question will have directed them elsewhere. They are counted as "not applicable." For others (one in this case) the survey form was not clear: two answers were recorded, the question was skipped, or something else happened that prevents you from reading the reply. This is "incomplete."

What do you do if people can choose more than one answer? For example:

Which of the following do you do every day after school? (CIRCLE AS MANY AS APPROPRIATE)

Sweep	01
Fetch water	02
Fetch fuel wood	03
Mind children	04
Cook	05
Wash dishes	06
Work in the garden	07
Sell in the market	08
Pound grain	09
Other (please explain)	10

For such questions count the answers. When you give your totals in a chart, you will have numbers that are higher than the number of girls in your study. Put a note at the bottom of the chart: "Respondents could choose more than one answer." Notice that in this example, double numbers are used for answers, because "Other" takes us up to a two-digit number, 10. If you are counting by hand, this does not matter, but if you are using a computer, your answer category numbers all have to have the same number of digits.

If you ask people to rank their answers, you need to show which ones were considered more important. For example:

Here are some reasons why girls don't go to school. In your opinion, which are the most serious? Please rank them from 1 to 5, giving a "1" to the most serious and a "5" to the least serious.

- Financial costs ☐
- Girls are needed to work at home ☐
- Parents are worried about girls' security ☐
- Parents believe that education is more important for boys ☐
- The school is too far away ☐

you can add up the scores for each answer. In this case, the answer with the lowest score is considered the most important. You cannot read a long list to people. Even for a relatively short one, you may be better off giving people cards with pictures or symbols on them and asking them to arrange them in order. Note that someone familiar with the culture should draw the pictures or symbols. Pictures can be culturally biased in their content, and even in the way they are drawn: for example, something drawn very small may not be interpreted as far away in some societies.

When you have finished, you can record the answers on a blank survey form.

All other methods of recording involve coding. For the question

Would you like to go to secondary school?

Yes..1
No...2

You have already pre-coded the choices. Writing all your codes down in one place and creating a **coding frame** is a good idea. These are instructions to a coder about what to write on a recording sheet or enter into a computer as each answer comes up.

Question 1: Sex

Female 1
Male 2

Question 2: State

Yobe 1
Borno 2
Jigawa 3

Question 3: Attended Evening Classes

Yes	1
No	2
Don't know	8
Incomplete	9

(Note: the code numbers to the answers in question 3 are the ones commonly used by coders for these answers, as is "0" in question 4.)

Question 4: Participated in the Advanced Program

Yes	1
No	2
Don't know	8
Incomplete	9
Not applicable	0

Let us say the first respondent (serial number 01) is a female: for question 1 she would be given a "1." If she lives in Jigawa, she will get a "3" on question 2.

Where this information is recorded depends on the method you use. You can enter the codes into a computer program, but if you are doing a mini survey, writing them on a large sheet is probably sufficient (table 9-2).

Table 9-2. Counting Answers for a Mini Survey

Respondent number	*Question number*			
	1	*2*	*3*	*4*
Respondent 01	1	3	2	0
Respondent 02	2	1	1	9

Thus respondent 02 is a male who lives in Yobe and attended evening classes, but you cannot read the answer to his question 4. Continue tabulating for all respondents and all questions.

You can do a cross-tab of sex by attendance at evening classes. Look at each female ("1" in question 1) and see what she said on question 3. Do the same for each male (table 9-3). If you had fifteen respondents, these would be the codings for the cross-tab of questions 1 and 3. Doing this on your large sheet is feasible if you do not want more than thirty cross-tabs. Beyond that, a computer is a better choice. You can also do cross-tabs for three or more questions: of the females (question 1) who attended evening classes (question 3), how many had children (question 6)? You can see that this will take a lot of work.

If you use a computer, this takes very little work. Once the codes and instructions are in the computer and you are using an appropriate program, such as SPSS or SPSS^X, you can cross-tabulate everything by everything else if you like, and end up with a lot of meaningless stuff: for example, of men who do not know whether they attended the advanced program (question 3), how many have four children? So choosing what to cross-tabulate is important, or you will end up with kilos of computer paper, and everything on it will look very "scientific" and worth putting in your report.

Table 9-3. Cross Tabulation of Two Questions

		Question 3			
		Code 1	*Code 2*	*Code 8*	*Code 9*
Question 1	*Code 1*	卌 I	II	卌	II
	Code 2	卌 II	III	III	II

An appropriate computer program will not only count and cross-tabulate, it will perform statistical tests of significance, association, and others (see chapter 17) on your material, even when the tests do not apply to what you have collected. Putting all that in the report is also very tempting.

If you intend to use a computer program, you should get help before and during the survey design process, so that the answers will be in a form that is easy to enter. You might consult someone who has used the program, or read a manual or guide, such as one of those listed in box 9-4.

Box 9-4. Computer Guides and Manuals

Brownell, Blaine A. 1985. *Using Microcomputers: A Guidebook for Writers, Teachers and Researchers in the Social Sciences.* Beverly Hill, California: Sage.

Bryman, Alan, and Duncan Cramer. 1990. *Quantitative Data Analysis for Social Scientists.* London and New York: Routledge.

Foster, Jeremy J. 1992. *Starting SPSS/PC+: A Beginner's Guide to Data Analysis.* Wilmslow, U.K.: Sigma Press.

Kleiger, Douglas M. 1984. *Computer Usage for Social Scientists.* Boston: Allyn and Bacon.

Madron, Thomas W., and C. Neal Tate. 1985. *Using Microcomputers in Research.* Newbury Park, California: Sage.

Nie, Norman H., and others. 1988. *SCSS: A User's Guide to the SCSS Conversational System.* New York: McGraw Hill.

Rattenbury, Judith, Paula Pelletier, and Laura Klem. 1984. *Computer Processing of Social Science Data Using OSIRIS IV.* Ann Arbor, Michigan: University of Michigan, Institute for Social Research.

Schrodt, Philip A. 1987. *Microcomputer Methods for Social Scientists.* Newbury Park, California: Sage.

SPSS, Inc. 1986. *SPSS^X Users' Guide,* 2nd ed. Chicago.

QUESTIONNAIRES

The procedure for developing a **questionnaire**, a form the respondent fills out, is more demanding, because you will not be there to work with each respondent, clarify questions, make sure that the answers are in the right places, and encourage the person to complete it. Everything has to be there on the paper in clear, relevant, and attractive form. How many questionnaires have *you* ignored because they lacked these characteristics?

A questionnaire is useful only if the respondents are literate and you are likely to get a minimum of 60 percent back. In places with poor communications systems, you will have to deliver and collect them yourself.

Much of what we know about making questionnaires accessible and motivating people to return them comes from the Western world, and involves cultural assumptions that may not apply and practical considerations that are different. Much research has been done on the days of the week that are best for mailing, what kind of incentives might be offered to get people to cooperate, the appearance of the questionnaire, its length, how much you can increase the rate of response by sending "waves" of follow-up letters asking people to return the forms, and so on. Investigators maintain, for example, that postal questionnaires usually have a response rate of less than 50 percent (70 percent or higher with follow-up waves), but that figure assumes, among other things, that an area has a convenient and trustworthy postal service and that people stay in the same place.

The advantages of a postal questionnaire are lower costs (you do not need a team of interviewers); everyone can be reached at about the same time instead of interviews stretching out over days or weeks; the respondent might feel a greater sense of anonymity; respondents have more time, especially if they have to consult records; and so on. You also do not have to worry about how the interviewer might bias the results.

The disadvantages are a lower response rate, and related to this, the fact that you have no idea what kind of people did not respond. Were the nonrespondents people who disapprove of education for girls? If so, you might conclude that 90 percent of people support girls' education, when this would not be the case. The biggest disadvantages, however, relate to confusion on the part of the respondents and a lack of motivation when you do not have interviewers.

Postal questionnaires are not the only type of questionnaire. You can also administer questionnaires to "captive" groups, such as schoolchildren or teachers attending a seminar. The return rate for these is much higher, and the potential for confusion lower if you are present to go through the questions with the group. But sending them to a school, for example, and allowing individual teachers to administer them is not a good idea. Each will have a different idea of how to do it, some will think the good name of the school depends on the children giving the "right" answers, and so on. A major disadvantage of this approach is that although you might have large numbers, they cannot be said to represent anything except that group. If that is all you want, however, this can be a good method.

Questionnaire forms, whether mailed or not, require a cover letter or statement explaining the purpose of the research, who is sponsoring it, who is being asked to participate, an appeal for cooperation, an assurance of confidentiality, and clear directions for completing the questionnaire. It may tell people that there are no right or wrong answers. Finally, it may invite people to tick a box at the end of the questionnaire if they would like to receive a summary of the findings. (Do this, of course, only if you are able to get such a summary to them.)

LOOKING BACK AT OUR INTERVIEW

Now that you have read this chapter, look back at the interview at the beginning of the chapter. Can you identify all the problems with it?

Our Girls

Much of what we want to know about the girls in X District can be obtained through a survey: you can ask girls about their characteristics and their reasons for leaving school, for example. You can ask parents about their attitudes toward girls' education and about why their girls left school. You can ask teachers the same questions.

FURTHER READINGS TO HELP YOU

Brislin, Richard W., Walter J. Lonner, and Robert M. Thorndike. 1973. *Cross-Cultural Research Methods*. New York: J. Wiley.

Bulmer, M., and D.P. Warwick. 1983. *Social Research in Developing Countries*. New York and London: John Wiley and Sons.

Casley, Dennis J., and Krishna Kumar. 1988. *The Collection, Analysis and Use of Monitoring and Evaluation Data*. Baltimore: The Johns Hopkins University Press.

Casley, Dennis J., and Dennis A. Lury. 1987. *Data Collection in Developing Countries*. Oxford, U.K.: Clarendon Press.

Chen, Kwan-Hwa, and Gerald F. Murray. 1976. "Truths and Untruths in Village Haiti: An Experiment in Third World Survey Research." In John F. Marshall and Steven Polgar, eds., *Culture, Natality and Family Planning*. Chapel Hill, North Carolina: University of North Carolina, Carolina Population Center.

Dawson, J.L.M. 1967. "Traditional versus Western Attitudes in West Africa." *British Journal of Social and Clinical Psychology*. 6(2):81–96.

Finsterbusch, Kurt. 1976. "Mini-Surveys: An Underemployed Research Tool." *Social Science Research* 5 (1): 81-93.

Kumar, Krishna. 1990. *Conducting Mini Surveys in Developing Countries*. A.I.D. Program Design and Evaluation Methodology Report No. 15. Washington, D.C.: U.S. Agency for International Development.

Mitchell, Robert Edward. 1983. "Survey Materials Collected in the Developing Countries." In M. Bulmer and D.P. Warwick, eds., *Social Research in Developing Countries*. New York and London: John Wiley and Sons.

Stone, Linda, and J. Gabriel Campbell. 1984. "The Use and Misuse of Surveys in International Development: An Experiment from Nepal." *Human Organization*. 43(1):27–37.

White, Benjamin. 1984. "Measuring Time Allocation, Decision-Making and Agrarian Changes Affecting Rural Women: Examples from Recent Research in Indonesia." *IDS Bulletin* 15(1):18–32.

What measures, scales, and indices are good for:
Measuring or assessing people on skills, aptitudes, attitudes, or characteristics.
Examples:
Assessing girls' mathematics skills
Rating villagers on characteristics such as "modernism"
Measuring the degree to which people agree with statements about boys' and girls' abilities
Two Sample studies:
Ross, Kenneth N., and T. Neville Postlethwaite. 1991. *Indicators of the Quality of Education: A National Study of Schools in Zimbabwe*, 2 vols. Paris: International Institute for Educational Planning (etic view).
Serpell, R. 1982. "Measures of Perceptions, Skills and Intelligence: The Growth of a New Perspective on Children in a Third World Country." In W.W. Hartup, ed., *Review of Child Development Research*, vol. 6. Chicago: University of Chicago Press (emic view).

10

Measures, Scales, and Indices

summary

Scales and indices are quantitative measures.

Many standardized scales and indices are available to the researcher, particularly in the field of education.

If they meet your information requirements and are culturally relevant and valid, when properly administered scales and measures can be very useful.

Some possible problems arise because many standardized scales and indices are culturally biased in their assumptions, concepts, language, and form.

A common scale used in the social sciences is a ***Likert scale****.*

Scales can be ***nominal*** *(the items are named differences, like red or green);* ***ordinal*** *(the items are ordered, for example, cool, warm, hot);* ***interval*** *(the differences between items can be given in numbers, say, ten degrees, twenty degrees); and* ***ratio*** *(the numbers are based on something that has a true zero, for instance, ten years, twenty years).*

Perhaps you have an idea that people's unwillingness to send their daughters to school is related to their conservatism, perhaps even more than to a lack of money, the distance from the school, or any of the other possible reasons. You feel that if this is true, you might be better able to address people's worries by changing the school curriculum, the teaching arrangements, and so on. But how can you find out if the people who are objecting to girls' education are "conservative?" Will you just ask them if they are? Or will you put a set of questions to them, the answers to which, when assembled, might tell you?

Social researchers often use **scales** and **indices** as measures or tests to show degrees of difference among people in relation to an attribute or characteristic, such as attitudes, behavior, mental abilities, or psychological characteristics. A scale or index is standardized, that is, given in the same form to everyone, and is intended to be objective, that is, not dependent on the researcher's biases or personal opinions.

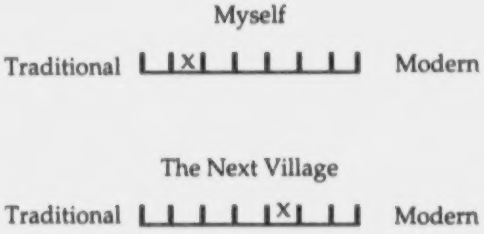
Thousands of standard scales and indexes have been designed to assess people on characteristics such as intelligence, achievement, aptitudes, prejudice, authoritarianism, modernity/conservatism, social competence, leadership, alienation, and many others. Perhaps you or your children have been given a scale or measure, such as an IQ, aptitude, or personality test. Such tests may be part of the testing and assessment procedures used in your education system. They are being discussed in this chapter because they are commonly used in the social sciences and in the fields of educational research and testing, so readers may be familiar with them and want to use them, especially because they are ready-made. None of the preparatory work involved in a survey is necessary: experts have already designed the questions or items and worked out the systems for scoring them.

Even though they may seem simple, tests and assessments using scales and indices are complex instruments based upon sophisticated theoretical assumptions. Simply applying them in a "cookbook" approach—asking the questions and scoring the answers from a book—is not enough. There's a second problem, as well: in their standard forms they may be culturally biased and inappropriate except in the societies for which they were designed.

First, let us distinguish between an index and a scale. An index is a self-contained measure: "How would you rate your school? Very good, good, fair, poor, very poor." You might assemble a number of such questions.

When the questions are interrelated in such a way that the answers form a pattern, you have a scale. A scale might show, for example, that people who say yes to the question "Would you support a woman candidate for prime minister?" are also likely to say yes to "Do you think women should be allowed to vote?" and "Should girls be allowed to attend school?" If you have devised a valid scale, people who say no to the last question are probably going to say no to the other two. Those who say yes to the last but no to the second are likely to say no to the first, as well. One type of pattern—the Guttman scale—is discussed later.

Indices and scales can be used in two ways: you can ask a person to make a judgment about her own characteristics or about those of others:



A second possibility is to give a set of multiple items, for example, a number of questions, each of which looks at some aspect of the characteristic, as in Dawson's (1967) Traditional-Modern scale (see chapter 9, figure 9-3).

When all the questions on a scale have been answered, each response is given a value, and the values are added up to produce a score.

In the first example you are relying on the person's judgment. In the second, you are assuming that your items are valid measures of whatever you are studying, such as "modernism." If you create the items yourself, you have no guarantee of that. What you think of as modernism and what someone else thinks may be very different. If you simply want to compare your own respondents, one against another, this does not matter too much, as you are giving them the same scale, whatever it measures. You just cannot prove that it measures what you say it does, and you cannot compare your results with those obtained by using someone else's scale, such as Dawson's.

SOME WARNINGS

Even if you use a standardized index or scale, you can still have problems. There is no absolute guarantee that a standardized form measures what it says it does. What does the Raven Matrices or the Wechsler intelligence test measure, for example? Some experts have argued that intelligence is a universal, measurable characteristic. Other have argued that it is culturally relative, that is, what is a crucial feature of intelligence in one society may not be valued or recognized in another. New theories of intelligence are emerging (see, for example, Gardner 1983; Sternberg 1985), but in the meantime, we are left with the existing tests, which measure something, but what?

The same question applies to personality tests. One of the most commonly used tests around the world, the Minnesota Multiphasic Personality Inventory (MMPI) and its successor, MMPI-2, contain Western cultural biases in the assumptions about mental illness, in the items presented, in what constitutes "normal," and in how the results are interpreted.

Defenders of standardized tests point to years of testing. They can show that people who score a particular way on one kind of personality test, for example, tend to score the same way on some other personality tests (in other words, the test is highly correlated), so *something* is being consistently measured. It is almost certainly being measured in a better way than something you put together yourself. But you still face a major question: is the scale valid in your culture, that is, does it measure what you want it to measure? Many standardized tests are culturally biased in several ways:

- In the language or kinds of concepts used. For example, in the Western world people commonly think of the very intelligent as impractical or unworldly: the mad scientist, the absent-minded professor. They almost consider it surprising when a genius carries out ordinary tasks, like remembering to get a haircut or planning a party. In many societies, such practical sense is a fundamental attribute of intelligence, along with many others that are not measured on standard IQ tests.
- In any pictures or drawings used. They too can be culturally biased, showing items that are unfamiliar or novel to people or that mean something else in that society. An old woman dressed in a black shawl can be a witch in one society, a respected grandmother in another, or a member of a religious order, a widow, or any number of other interpretations. Sometimes psychological tests that are based on pictures, such as the Thematic Apperception Test (a psychological test) have to be redrawn to be meaningful. Once they are redrawn, of course, the results cannot be compared with those obtained from people who took the original test.
- In the conventions of representation. Although people's eyes are the same everywhere, we are taught to "read" pictures in different ways. Part of this is because while the world appears three-dimensional to the eye, pictures are two-dimensional. One convention used in many places is to show objects that are meant to be far away as smaller, but some people may read this as a small, rather than a distant object. Some research has also suggested that people who are accustomed to certain kinds of environments or living conditions (housing with no right angles, hunting that involves scanning the horizon, and so on) read pictures differently from people not accustomed to those conditions.
- In the importance of the concepts in your society. An instrument called the Myers-Briggs Type Indicator (MBTI) (Myers and Meyers 1980) is very popular in the United States. It measures individual personality type on four dimensions:
  - — (E) Extraversion-Introversion (I)
  - — (S) Sensing-INtuition (N)
  - — (T) Thinking-Feeling (F)
  - — (J) Judgment-Perception (P)

  Thus, of the sixteen possible combinations, a person might be classified as "INTJ": taking an introverted, intuitive, thoughtful, and perceptive stance in relation to situations. Employees of the World Bank tend to think that most of the people working there fall into one category. What that is, and whether there is any substance to the rumor, does not concern us here. What matters is that even if the MBTI is a valid indicator, *what* it is measuring may not be important in your society, or not as important as other dimensions that are not measured. Suppose that the preeminent distinction in a society is between those who are optimistic and pessimistic or competitive and noncompetitive no matter how else they approach life? That will not show up on the indicator, which was not designed to accommodate dimensions other than those mentioned. Or suppose that your society recognizes something more sophisticated than these bi-polar concepts, something that combines aspects of both? The danger is that because the standardized indicator exists and has been widely used, you might be tempted to use it, even if it does not tap the distinctions that are meaningful in your culture.

- In the assumptions on which testing is based. People in many cultures are not accustomed to being tested. Some are unaccustomed to individual work: their culture values a team approach, and they want to consult others about their responses. The order of presentation of items (going from the general to the particular or vice versa, going backward in time, or starting in the past and moving forward); the use of examples and abstract concepts; and the length of the test can all affect the results. Trimble, Lonner, and Boucher (1983), experts in using measures cross-culturally, say that three assumptions underlie measurement:
    - People can order or rank the ideas or items that you present to them along a single line: for example, people may be asked to rate the school system on a scale of one to seven, one being very good and seven being very bad. However, there is no evidence that people in all cultures think this way.
    - The items in the test reflect all people's real-life way of thinking: "Which two of these three items are more alike, and which is different?" This may be alien to some cultures.
    - People are able and prepared to be self-reflective and to share their thoughts with the researcher: "How satisfied are you with spouse?" is too personal for some people, and simply baffling to others. "Satisfied" may not be a concept to be applied to spouses, or it may be irrelevant. One can do nothing about one's spouse, so what is the point of thinking about whether one is satisfied or not?

For an excellent review in cross-cultural testing and assessment see Lonner (1990).

TYPES AND SCALES

Scales in the social sciences, whether standardized or not, tend to fall into one of three types: **Likert scales**, **Thurstone scales**, and **Guttman scales**. Each is based upon a different set of assumptions about the way people respond to things. For example, in the hypothetical Guttman scale shown in table 10-1, you have asked eight parents whether they pay for extra studies for their children, provide all their textbooks, give them lunch money, and buy their exercise books. You have recorded the answers, and as you can see, they form a pattern.

In a perfect Guttman scale, anyone who pays for extra studies also does all the other things; anyone who does not pay for extra studies but pays for books, pays for lunch and exercise books as well; anyone who pays for lunch also pays for exercise books; and anyone who pays only for one thing pays for exercise books. This would tell you that paying for exercise books is the easiest to achieve and paying for extra studies is the most difficult, and you could plan a program accordingly. Notice that our scale is almost perfect: only respondent number 1 breaks the expected pattern.[1]

---

[1] To calculate the degree to which such a scale approaches a perfect scale (or the coefficient of reproducibility), the formula is 1 - (number of "errors"/number of entries). Our example has thirty-two entries (eight respondents times four items) and one "error." Calculated, this give us a figure of 0.97. Anything above 0.90 is considered significantly close to a perfect scale.

Likert and Likert-like scales are the most commonly used today for a variety of theoretical reasons (see Judd, Smith, and Kidder 1991 for a discussion of this). In a Likert scale people are invited to respond to a set of items. Let's say you want to look at people's progressiveness or some other meaningful concept in your society and you have tried to work out all the dimensions of this concept as they apply to girls' education. Now you ask people whether they strongly agree, agree, don't know, disagree, or strongly disagree with these statements (figure 10-1).

Table 10-1. Example of a Guttman Scale

Respondent	*Extra studies*	*Books*	*Lunch money*	*Exercise books*
7	+	+	+	+
5	+	+	+	+
8	–	+	+	+
4	–	+	+	+
6	–	–	+	+
2	–	–	+	+
1	+	–	+	+
3	–	–	–	+

Figure 10-1. Example of a Likert-Like Scale

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
It would be better to tackle the problems of boys' education first before worrying about girls' education					
Too much time is spent teaching girls things they will never use					
Today, girls need as much education as boys					
Both boys and girls should be taught to memorize the president's speeches					

The assumption is that people with a strongly favorable view toward something (girls' education, for example) will agree with favorable items and disagree with unfavorable ones, while people opposed to it will do the reverse, and people who are neutral or undecided will fall somewhere in the middle. The person's score is obtained by subtracting the numbers of responses to items that are considered negative from those that are considered positive. On a standardized Likert scale, the positive and negative items have already been chosen, so the scoring instructions are clear.

Many researchers put some Likert-like questions in their survey. These may be taken from one of the many standardized scales or created by the researcher, as we did in chapter 9. Let us say you show six pictures of girls dressed in a range of clothing from very traditional to ultra-modern. You ask people to rate them on goodness, responsibility, honesty, virtuousness, marriageability, and so on. You use a word scale like very good, good, and so on, or a drawn scale with good on the left, bad on the right, and five or seven spaces to choose from in between. Perhaps you have a good idea as a result that many people think girls in ultra-modern clothes are bad and irresponsible. This is a modest effort: you are simply using the scale as a form of forced-choice question. You may even find that the answers form a pattern, as on a Guttman scale.

However, experts warn against assuming that you can easily create an acceptable scale yourself: research expert Delbert C. Miller calls it "an activity of last resort" when you cannot find a scale that suits your needs, or the scale you want to use is poorly constructed. But, as he points out (Miller 1991, p. 579), "putting some items together and assigning arbitrary weights to them" is not the answer.

Look back at figure 10-1. How do we know, for example, that people who agree with the statement "girls need as much education as boys" are progressive? Maybe they mean girls should have as much education, but it should be restricted to home economics. If we change it to "girls should have exactly the same education as boys," is this necessarily a progressive idea? Is "both boys and girls should memorize the president's speeches" progressive or nonprogressive? No distinction is made by sex, but is memorizing the president's speeches progressive, nonprogressive, or something else entirely? Items that do not "work" should be discarded. This is usually done by asking an independent panel to rank items for progressiveness/nonprogressiveness. Items with high agreement among the panel are more likely to be useful. The final results of the scale are then compared with other results and tests: for example, on your scale, are the people who scored as progressive the same ones who recently voted to close all schools to girls?

The measures and scales discussed in this chapter are almost always etic: you, the researcher, decide the categories, the mode of ranking, and so on. In chapter 14, we will look at participatory measures and scales, which are usually emic. They enable people who are participating in the research to develop and rank concepts, problems, and solutions as they see fit. The participants decide what constitute the important dimensions of a situation and what weights to assign them. As a result, each scale or measure is unique to the group concerned.

Whatever the scale, it can take four different forms:

- **Nominal**: one object is different from another: men or women, red or green. White (1984, p. 27) used a nominal scale when classifying whether husbands, wives, or both participated in decisionmaking. (See chapter 16 for the scale itself.)
- **Ordinal**: One object is bigger or better or more of something: never, sometimes, frequently; primary, secondary, tertiary education.
- **Interval**: one object is so many known units more than another, and there is no true zero: ten degrees Fahrenheit, twenty degrees Fahrenheit; an IQ of 75 and one of 150.
- **Ratio**: one object is so many times more, in multiples, and a true zero exists: ten inches, twenty inches. Note the difference between interval and ratio: twenty degrees is not twice as hot as ten degrees, but twenty inches is twice as long as ten; a thermometer has an artificial zero, a physical object measured by a yardstick has a true zero.

The scales most commonly used in the social sciences are ordinal and interval. Table 10-2 shows these and the statistics that can be used with them. For some of these statistics see chapter 17.

If you decide that a scale is what you need and you are choosing a standardized scale, try to get as much information as possible on these questions:

- Is the scale valid: does it measure what it says it measures? What is the evidence (for example, are its results consistent with those of other, similar measures)?
- Is it reliable: does it produce the same results each time if the circumstances are the same?
- Does the scale fit your problem?
- Will the scale be relatively easy to administer and score?

- Do you understand the statistics that are used to interpret the scale?
- Is the scale appropriate for your culture?

Table 10-2. A Summary of Measurement Scales, Their Characteristics, and Their Statistical Implications

Measurement scale		*Characteristics of the scale*	*Statistical possibilities of the scale*
Noninterval scales	Nominal scale	A scale that measures in terms of names or designations of discrete units or categories.	Can be used for determining the mode, the percentage values, or the chi square.
	Ordinal scale	A scale that measures in terms of such values as more or less, larger or smaller, but without specifying the size of the intervals.	Can be used for determining the mode, percentage, chi square, median, percentile rank, or rank correlation.
Interval scales	Interval scale	A scale that measures in terms of equal intervals or degrees of difference, but whose zero point or point of beginning is arbitrarily established.	Can be used for determining the mode, the mean, the standard deviation, the *t*-test, the *F*-test, and the product moment correlation.
	Ratio scale	A scale that measures in terms of equal intervals and an absolute zero point of origin.	Can be used for determining the geometric mean, the harmonic mean, the percent variation, and all other statistical determinations.

Source: Leedy (1989, p. 26). Reprinted by permission of Prentice-Hall, Upper Saddle River, New Jersey.

How do you find scales and measures? Hyde (1989) has compiled a guide to scales, measures, tests, and other instruments, such as inventories, surveys, and interview and observation forms that have been or might be used to study girls' attendance and achievement in developing countries. Of the thirty-one instruments in the guide, twelve have been used in Africa and seven others outside Canada, the United Kingdom, and the United States. Appendix 2 contains a list of them, along with addresses to which you can write to get a particular item. For an extensive list of scales and measures, generally, see Miller (1991).

Our Girls

Back to chapter 4 and our girls in X District. Would measures or scales help here?

Look at box 4-3. Under "B. School-related characteristics" we have "examinations or other assessment." Here we might look at the results each girl got on standard assessments for reading, mathematics, and other subjects.

In box 4-5, we could look at overall performance in the school system by gender, socioeconomic group, ethnicity, language, and so on. Do girls of a particular group do worse? Is that one reason why they leave at Grade 6?

BEST COPY AVAILABLE

FURTHER READINGS TO HELP YOU

Brislin, R.W. 1990. *Applied Cross-Cultural Psychology.* Newbury Park, California: Sage.

Brislin, R.W., W.J. Lonner, and R.M. Thorndike. 1973. *Cross-Cultural Research Methods.* New York: John Wiley.

Irvine, S., and J.W. Berry, eds. 1983. *Human Assessment and Cultural Factors.* New York: Plenum.

Judd, Charles M., Eliot R. Smith, and Louise H. Kidder. 1991. *Research Methods in Social Relations,* 6th ed. Fort Worth, Texas; London: Holt, Rinehart and Winston.

Lonner, W.J. 1990. "An Overview of Cross-Cultural Testing and Assessment." In Richard W. Brislin, ed., *Applied Cross-Cultural Psychology.* Newbury Park, California: Sage.

Lonner, W., and V. Tyler. 1988. *Cultural and Ethnic Factors in Learning and Motivation: Implications for Education: The Twelfth Western Symposium on Learning.* Bellingham, Washington: Western Washington University.

Miller, Delbert C. 1991. *Handbook of Research Design and Social Measurement,* 5th ed. Newbury Park, California: Sage.

Sternberg, R.J. 1985. *Beyond I.Q.: A Triarchic Theory of Intelligence.* New York: Cambridge University Press.

What the interview is good for:

Greater tailoring of questions to individual people or situations

More interaction between interviewer and respondent

More flexibility in that the interview can be redirected as it proceeds depending on what you learn

Examples:

You want to explore with a small group of parents their fears about girls' security. What are their experiences?

You are considering a new kind of project for girls. You hear that various nongovernmental organizations have tried similar ideas. What happened? Interviewing the staff of each nongovernmental organization might help to refine your project.

Sample study:

Bledsoe, Caroline. 1990. "School Fees and the Marriage Process for Mende Girls in Sierra Leone." In P.G. Sunday and R.G. Goodenough, eds., *Beyond the Second Sex*. Philadelphia: University of Pennsylvania Press.

11

Unstructured and Semistructured Interviews

summary

*This chapter and the next two look at **qualitative** techniques, or techniques that produce material in words rather than in numbers. When you are using qualitative techniques, your main instrument is yourself. Your personal qualities will really come into play now.*

*Many of the underlying principles of structured interviews also apply to **semistructured and unstructured interviews.** This chapter explores a particular type of unstructured interview, the **emic approach,** using **interviews, card sorts,** and **triads.** A checklist is also provided for semistructured interviews.*

*You can cary out interviews with individuals, such as **key informants,** or with groups. Some special types of group interviews are **community interviews** and **focus groups.***

The techniques in this and the next two chapters are often called **qualitative**: they produce material in words rather than in numbers, although it can later be converted to numbers, if appropriate.

INTRODUCTION TO QUALITATIVE TECHNIQUES

Qualitative techniques usually, but not always, resemble the everyday methods that people use for getting information and take place in the same kinds of settings: in people's houses, in a village, in the classroom, that is, the places where what you are interested in actually happens. Because of this, you get the context in which the action, behavior, or process occurs, which gives you a more holistic picture as you can see the background in which your material is embedded.

Qualitative research can be used for

- Getting a preliminary picture so that you have enough information to refine your strategies and questions
- Interpreting the meaning of material collected through quantitative techniques
- Illustrating and fleshing out findings from quantitative research
- Ruling out hypotheses.

In some cases, qualitative research is the best way of getting certain kinds of information.

In quantitative techniques the instrument is the questionnaire, test, or measure. In qualitative methods, the instrument is the researcher. Thus part of the reason why rules for qualitative research have never been set forth as clearly as those for surveys is probably because a lot more depends on the researcher's good sense, experience, and personality. Used properly, qualitative techniques can give you a richness and depth that you are unlikely to obtain through other methods. Used carelessly, they produce material with no more value than a tourist's snatched impressions. As always, using a variety of methods to strengthen your information is a good idea.

Some of the techniques in this section are time-honored methods and others are less common. You should adapt all of them to your own cultural situation and requirements. Three comprehensive books that focus specifically on qualitative research in education are Dobbert (1984); LeCompte, Millroy, and Preissle (1992); and Wolcott (1994).

UNSTRUCTURED OR INFORMAL INTERVIEWING

Unstructured or **informal interviewing** is often used at the beginning of a piece of research to get a broad picture, or because you do not know what is important to ask. "Tell me about…" is a good way to start. Another, which can produce useful information, but has to be used in a way that shows you are trying to learn rather than being frivolous, is "What questions should I be asking you about this?" Of course, people may then wonder why you are the researcher and they are the interviewees, but being humbled is not the worst thing that can happen to a researcher. You can also use informal interviewing to cross-check pieces of information, to fill in details, to explore new areas as they arise, and to take advantage of unexpected opportunities.

Informal interviews have the appearance of conversations, and follow the social rules appropriate to the people you are working with. The difference is that if it seems acceptable and practical, you will be taking notes (if not, you have to take them later). When analyzing and presenting what people tell you, you must, of course, be careful about their integrity and uphold the trust they placed in you.

Emic Techniques for Interviewing

In chapter 3 we discussed etic and emic research. In etic research you determine the agenda and the categories in which people give information back to you. In emic research you try to see from within, to discover perspectives, interests, and problems as seen by the insider. In emic research the respondents rather than you decide what information is important, and they create the categories for the interview. This is particularly important in relation to girls' and women's concerns, such as labor force activities, because many established categories of information, such as certain census categories, were created for male activities.

Some applications of emic research require considerable sophistication and are quite time consuming. The following discussion presents a more general way of using the approach to complement other techniques, as a rather unusual type of unstructured interviewing. Nevertheless, however unstructured the technique may appear to the observer, its purpose is to discover the structures, categories, and groupings that the people you are working with use to organize the way they see things.

EMIC INTERVIEWS

Chapter 4 already provided an example of emic questioning using the grand tour approach developed by anthropologist James Spradley (1979). Here is another example. Remember, the aim is to learn how people categorize things, ideas, concepts, processes, and so on. The only question that you create is the first one. The rest arise from what the respondent tells you.

Q.1 What kinds of courses are offered in this center?
A.1 There are skills courses and crafts courses and technical courses.

Q.2 What kinds of skills courses are there?
A.2 Life skills and catering.

Q.3 What kinds of life skills courses are there?
A.3 Childcare, cookery.

Q.4 What kinds of childcare courses are there?
A.4 There are no kinds, just one course.

Q.5 What kinds of catering courses are there?
A.5 Cookery.

Q.6 What is the difference between life skills cookery and catering cookery?
A.6 Girls take life skills, boys take catering.

Q.7 What kinds of craft courses are there?
A.7 Food preparation, mechanics, and general woodworking.

Q.8 What kinds of food preparation courses are there?
A.8 Cookery and food technology.

Q.9 What is the difference between this cookery course and the other two?
A.9 You need to have finished primary school to do this cookery course.

Q.10 Do you need to have finished primary school to do the other craft courses?
A.10 For mechanics, yes. Not for general woodworking or food technology, they aren't taught in primary school. Next year they will be. Then you'll have to have finished primary school to take it.

Q.11 What kind of technical courses are there?
A.11 Cabinet making and mechanics.

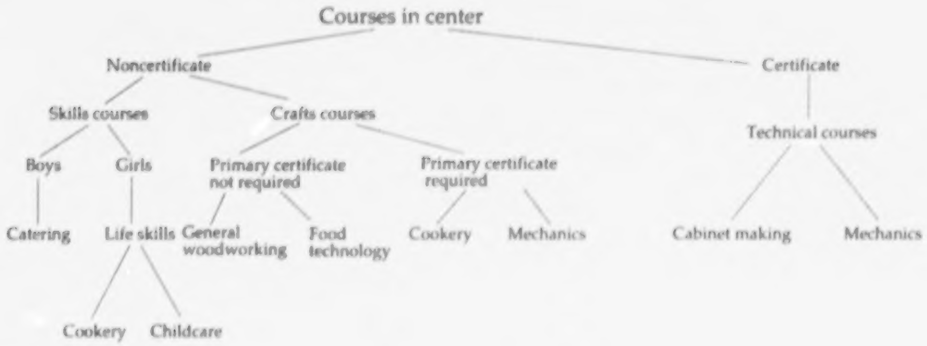
Q.12 How does this differ from general woodworking and mechanics?
A.12 You can get a certificate in the technical courses. The others don't give you a certificate.

And so on. When your understanding is complete, you could construct a diagram—a taxonomy or a tree—showing types of courses and distinguishing features, including the fact that for crafts courses, if there is a primary school base course, it is a prerequisite to entry (table 11-1 and figure 11-1).

Table 11-1. Courses Offered by the Center Presented in Tabular Format

Noncertificate					Certificate
Skills courses			Craft courses		Technical courses
Boys	Girls		Primary school certificate not required	Primary school certificate required	Cabinet making Mechanics
Catering	Life skills		General woodworking Food technology	Cookery Mechanics	
	Cookery	Childcare			

Figure 11-1. Course Offered by the Center in Tree Form



You might then move on to try to discover the characteristics of the groups you have identified by looking for similarities and differences among them. Suppose you asked girls in a primary school what kinds of vocational and technical training programs they knew about. You could then try to discover what distinguishes them in the girls' minds, and might come up with a chart like that in table 11-2.

Table 11-2. Knowledge of Center Courses by Girls at Primary School

Program	*Religious requirement?*	*Cost?*	*Prerequisite?*	*Qualification when finished?*
St. John's	Yes	High	Secondary education	Diploma
Automotive training	No	Medium	Primary	Certificate
Business college	No	High	Secondary	Diploma
Mrs. Ali	No	Low	Middle school	None; finds you a job
YWCA	Yes	Low	Middle	None
Policelady	No	None	Secondary school plus pull (you need to know someone)	Gives you a job

Table 11-2 is actually an example of a **componential analysis**, which we look at as a method of analysis in chapter 16.

CARD SORTS OR PILE SORTS

We saw examples of card sorts in chapters 4 and will come across them again in chapter 15. In this procedure you ask people to sort cards, photographs, drawings, or objects into categories of their own choosing. For example, give people a set of cards with the names of people, types of education, jobs, or activities and ask them to sort them into groups. Then ask what the categories are, what their characteristics are, what makes the people or items in one pile more similar to each other than they are to the items in another pile. Keep repeating the process. As you are looking for shared cultural knowledge, not personal idiosyncrasies, you need to ask a number of people. You will know when to stop when the categories become repetitive. Everyone's categories will not necessarily be identical; see if you can find the common ones. You can then check your perception of the categories by doing the process the other way round: give someone the pack of cards, list the categories, and ask that person to sort the cards into the categories. If the sorter has some people or items left over or cannot fit the cards into the categories, they may not be meaningful, and you might have to start over.

You might give someone a pack of cards with names and ask her to sort them into who is likely to remain in school and who is not likely to remain in school. Then ask why. Nonliterate people can simply go through their community, mentally, house by house, and categorize the girls in each.

TRIADS

To get more refinement on the card sort method, you can present people with groups of three cards or items and say "Choose the one that doesn't fit" or "Choose the two that seem to go together," and then ask "Why?" Regroup the items within other sets of three cards and repeat. This allows you to understand the grounds on which some things share characteristics, for example, "Which two are more alike in this group, mother, daughter, niece?" tells you whether the direct line of family or the generation is more relevant in this particular context. "Which two are more alike, trained teachers, untrained teachers, trainee teachers?" may tell you something about experience if the first two are grouped together, something about status if the last two are, and something about the importance of professional qualifications if the first and third are.

You can also use triads as a major research technique using large numbers of people and many items. These are still presented to people in groups of three in all possible combinations. Then you need to work out how often each possible pair is selected. See Bernard (1994, pp. 231–34) for a discussion of how to work with the combinations that arise when using large numbers of respondents.

You cannot read anything other than cultural information into your sortings when using either cards or triads. For example, in the Western world some experts think that categorizations based on perception (color, size, shape, number) reflect a simpler level of analysis than sortings made by function (things that are used together or have a similar purpose). Sortings based on taxonomies are thought to be the most sophisticated of all (putting certain plants or animals together because they belong to the same species or family). Although schooling can create a tendency to classify by taxonomy, people are more influenced by their culture when grouping things together. This is useful to know, because what you are trying to get is cultural information, not individual intellectual or personality assessments.

Semistructured Interviews

In **semistructured interviews** you do not have a standard interview form. You have an agenda that you use as a reminder to ensure that you eventually cover the basic points, but your questions are tailored to the individual or category of person and to the circumstances. For example, you may want to know what kinds of skills training programs should be developed for young women. Some of the people you may be approaching will be government officials, nongovernmental organizations heads, employers, old people in a village, young women, and girls, each requiring a different approach to the interview, including different wording, order, and length. The issue is not simply a matter of people not understanding your questions if you do not adapt them. If you fail to use appropriately professional language to experts, they may feel you do not know enough to warrant their expenditure of energy on you; if you use professional or official sounding language on people who are wary of officials, they may not cooperate; if your language is not sufficiently respectful to the elderly or sufficiently sensitized for strongly committed people, you may get a lecture rather than your answer.

Good books on actual interviewing rather than on how to approach people are difficult to find, because sense, style, empathy, and on-the-spot thinking and responsiveness are more important than sets of guidelines. However, some general pointers follow. Some of these are also useful for participant observation (see the discussion later in this chapter) because observation usually involves asking questions as well.

Before the interview

- Develop a brief list of points, perhaps ten at most, or a mental map of what you want to know, but be prepared to be flexible. Because these kinds of interviews are ideal for getting more "in-depth" information, you will lose this advantage by asking too many questions.
- Choose interviewers or decide whether you yourself can do a particular interview, remembering that all else being equal, people are usually more comfortable with people like themselves in terms of age, ethnic group, gender, social standing, and so on, although sometimes they see an "expert" as more broad-minded, unshockable, or impartial.
- Choose the people you are going to interview. You can select them on a probability sampling basis, but you are more likely to have some other basis on which to choose them: some people have specialized knowledge, some people have undergone an experience that you need to understand, some people represent a good example of a pattern you have found, some people fly in the face of everything you thought would be the case.

During the interview

- Behavior is important. Observe local courtesies: for example, not sitting on a higher seat than a senior person is important in some cultures or not pointing a finger at anything in others. Try to use local conversational patterns and colloquial language. Introduce yourself, explain briefly the purpose of your study, tell how the person was selected, say about how long the interview will take, and ask if it is convenient for the person to talk to you now. Fit your interviews in with people's timetables. Offer to help people with what they are doing, if appropriate. Do not lecture, do not show surprise or shock or distaste. When you ask a question, let people talk. Do not interrupt them or finish their sentences for them. Listen to what they actually say, not what you expect them to say.
- Choose the questions. Where do you get your questions? If you are using the research outline approach (chapter 4), "interviews" will be listed beside some of your points:

Outline	*Technique*	*Source*
Parents' attitudes toward — girls' abilities	Interviews	Parents of girls in Grade 6

  Convert the outline point into a question or questions. If you are using an emic approach (chapter 4), you have a grand tour question: "What happens in this science class?", and perhaps a card sort or a triad: "Of these three (things, people, processes) which two are more alike and why?" "Why is the other one different?" These will lead you to more questions for clarification. If you are using the grid approach shown in chapter 4, you can use the questions in the boldly outlined boxes to give you a basic picture and any others that may be relevant.

- Ask the questions. In organizing your questions, try to ask for neutral facts first, eventually moving on to the interviewee's opinions and to any sensitive issues. Take the trouble to find out from someone who is sympathetic to your research what the sensitive issues might be, such as girls' circumcision or local feuds. Do not try to discuss them until the interviewee is comfortable with you. This may take several visits. People may not discuss some topics at all. If you really need the information, see if you can get it in other ways, for example, can you use a **proxy indicator** (see the discussion in chapter 7)?

Sometimes you can deal with sensitive issues by showing that you already know something about the subject: "As I understand it, some people think the teacher should not have been transferred for having sexual relations with a girl of twelve because she was old enough to be married. Others feel it was rape and it was right that he had to leave. What is your own feeling?" If you simply asked, "Should a teacher be punished for have sexual relations with a pupil?", people might say "I don't know. We don't have problems like that here."

An interview can give greater depth than a questionnaire, because you can **probe**—encourage people to expand on their answers—and cross-check information. Chapter 9 mentioned some probing strategies that are also appropriate for interviews:

— Ask questions that allow people to develop their answers, not questions that can simply be answered by "yes" or "no."

— Pursue useful information further by asking questions that will tell you "Who?", "What?", "Where?", "When?", "Why?", and "How?" as appropriate.

— Encourage people to expand on an answer by pausing after the reply, and perhaps giving some sign of encouragement, and using phrases like "Can you tell me more about that?" "Can you give me an example?"

— Encourage people to clarify their answers: "Let me see if I understand this correctly. You say all your children are now at Oxford?"

— Cross-check the answers by phrasing the question slightly differently: for example, to someone who wants to send a daughter to school but cannot: "What are the main reasons why you can't send your daughter to school?", and later, "What would help you to send your daughter to school?"

- Observe: people communicate both verbally and nonverbally (through actions). The better you know a culture, the better you will be able to "read" its people. Noticing interviewees' gestures, body movements, hesitations, pauses, tones, and other signs may help to give you a better understanding of what they are saying. But do not jump to conclusions. In your notes record both what they said and what they did, rather than your interpretation.

After the interview

- Thank the interviewee. If you are not going to see this person again, tell her or him what to expect next. Are you eventually going to hold a village meeting to discuss your findings? Is a report going to come back to the chief? Will a delegation come to the village? Will a departmental meeting be held on the issue? Although you can use what you learned to develop new questions, and in subsequent interviews you can test the ideas you gained, never carry information from one interviewee to another.

- Evaluate the answers. For many researchers this seems to be a more important issue in informal and semistructured interviews than it is in surveys. However, the problem is the same, no matter what the technique, and no foolproof way exists to ensure that what someone tells you corresponds to what the person actually thinks or experiences, no matter how many cross-checks you insert. However, this is a good opportunity to make a few points that people often forget:

  — Often you are not really interested in the truthfulness of individuals. You are studying social and cultural factors, and unless an entire group is deliberating deceiving you by every means available to them, this is not an important issue. The more important issue is your own ability as a researcher, which is a far more common source of major error.

— If you are using triangulation (multiple methods, researchers, sources, and so on as discussed in chapter 7), serious errors based on deception should emerge. You will find discrepancies between what people say, do, and may be recorded as having done. Also, experience and theory in your own field may tell you that something cannot be the case. For example, an anthropologist who is told that a group of people who are herders trace their descent through women and observe the practice of giving a bride price when a girl is married to her mother's sister's son would hear a warning bell go off. These customs do not go together anywhere, and the combination does not make sense. Your own field probably has "bells" like this.

— What people say and what happens are often two different things. When a culture is changing, for example, people often fail to notice that the ideal and the practice no longer correspond. "Daughters go to live with their husband's people when they marry," they say, and yet you discover that almost no household reflects this pattern, perhaps because times have got worse and young couples go to live wherever their best chances lie, but people still hold to the ideal. You may recall the experience of researcher Ingrid Palmer (1981, p. 34) as noted in chapter 7: an official in the Gezira told her that women did not work in the fields, but at the same time she saw a field of women working. When she asked the official about it, he said they were "helping out." See box 11-1 for a discussion of why people "lie."

Box 11-1. Why Do People "Lie"?

In the case of the Gezira example, several explanations are possible:

- The official was lying, or was just wrong.
- It is a cultural myth and the facts have never supported it. "Because of their lesser physical strength, women are protected from hard labor" is a myth in the Western world, easily contradicted by watching a mother wrestle a pram, children, and shopping onto a bus. Women are protected from hard paid labor.
- The cultural pattern was changing rapidly and people still thought these instances of women working in the field were exceptions.
- What people in Gezira consider to be working in the fields may refer to some other part of the agricultural cycle or another agricultural activity.
- This was an odd event. Women don't work in the fields.
- This is a man's domain and anything women do is considered to be "helping out."
- They were working in the field, but shouldn't have been for legal, cultural, or other reasons.

— When people say one thing and do something else, you can often learn much more about what is going on than when everything matches. Of course, first you have to know enough to know that things do not match. This can be difficult when the subject is sensitive and not easily checked. Wolf Bleek (1987), who studied subjects such as family quarrels, suspicions of witchcraft, sexual relationships, and birth control practices, including induced abortions, in a

Ghanaian town, provides one of the most striking examples. He lived with and studied one lineage (or large family group) that included nineteen women of childbearing age. He concluded after some time that induced abortion was common among the women.

However, at the time of his research, he notes that "statistical data enjoyed higher esteem than at present," and therefore he arranged for 179 women to be interviewed during their visits to a child welfare clinic. The women reported few induced abortions and little use of birth control. The nurse-interviewers believed that many of the women were lying. Only 4 percent of the 179 women admitted to an induced abortion, while more than half of the 19 women in the compound did; only14 percent admitted to ever practicing birth control, while 63 percent of the women in the compound did. By accident, Bleek discovered that six of the lineage women had taken part in the survey. Table 11-3 compares the answers given by two of them on the survey, versus what Bleek discovered as a result of coming to know them in the compound.

Table 11-3. Comparison of Two Women's Answers

Information obtained from survey interview	*Information based on participant observation*
Name: Opokua	
Married both according to custom and in Roman Catholic church	Unmarried
Lives with husband	Has no husband
Eats with husband	Has no husband
Has been pregnant once	Has been pregnant twice
Has induced an abortion with a tablet (her husband helped her)	Has induced an abortion at the request of her boyfriend; she used a mixture of herbs, milk, and sugar
Name: Nyamekye	
24 years old	31 years old
Divorced once	Divorced twice
Given birth to four children	Given birth to six children (two have died)
Has been pregnant four times	Has been pregnant at least nine times
Lives with husband in Accra	Lives without husband in Kwahu town
A female servant prepares her meals	She has no servants
Has never used any method of birth control	Has experience with many methods of birth control
Never had an induced abortion	Had at least three induced abortions

Source: Bleek (1987, pp. 314, 317–20).

In retrospect, Bleek concludes that the women had reason to lie to the survey researchers, because abortion was not only very private, but also a criminal act. He also realized that his "detective-like" approach with the nineteen women, while revealing hidden facts, prevented him from recognizing their serious social and psychological importance. Had the women had a chance to conceal their behavior, he would have seen how serious a subject they considered it to be, and more of what it meant to have an abortion in Ghanaian society.

Remember as well that people's beliefs and perceptions are as important as what they may actually be doing at the moment, even though what they are doing seems to conflict with what they say. What they say may be the general pattern, all other things being equal; what they are doing at the moment represents an attempt to accommodate the pattern to the circumstances. Both are important. Beliefs are facts just as much as activities are. Do not fall into the trap of thinking that beliefs are subjective and what people do is objective. Both are, or neither are, depending on your philosophical approach (see chapter 2).

Because many cultural patterns are shared, do not discount anyone on the grounds that he or she could not know anything useful. Everyone has a sufficient command of his or her own cultural repertoire to be able to function. Some people are better at communicating this than others; predicting who is difficult. Do not persist with people who cannot or will not participate. You do not have the time.

- Write up your notes immediately. Record
    - The circumstances in which the interview took place
    - What you were told, in direct quotes where possible
    - What you saw
    - Any judgments of your own that you think might be useful ("I think Mr. Okoro was more at ease before his wife joined us"), and record them separately.

See chapter 15 for advice on recording techniques.

CULTURAL BIAS

You might think that because people converse everywhere in the world, the interview would be less liable to cultural bias than, say, questionnaires and measures. Certainly, the interview can appear more natural, particularly when you observe proper local protocol. Still, even an informal interview is not the same as a conversation because the expectations of both the interviewer and the interviewee are different.

Two researchers, Slim and Mitchell, have discussed some other problems. One is the researcher's expectation that people have an answer to or an opinion on every question. The second is "nutshelling," the Western notion that people should give a brief, to-the-point summation of their experience or knowledge in response to a question, whereas in many cultures talking through and considering all angles is the most judicious way of presenting one's ideas. Both these notions are contrary to the experience of many people in Africa and other parts of the world: they know that "one cannot know everything, and that the little one knows cannot be uttered in a moment" Slim and Mitchell (1992, p. 69). A third problem, which applies to surveys as well, is that most people prefer a two-way exchange, or even more. People may want to know what *you* think, how many children *you* have, and may want to call in a few neighbors or family members as well to ponder some of your questions in a more companionable way. Often, this does not matter. You are trying to understand what is happening, how, and why, so if this helps you, fine. If it interferes with your learning what you need to know, you will have to develop strategies to withhold your own opinions without seeming rude, and figure out how to talk to people privately. Other useful books on this topic are McCracken (1988) and Spradley (1979).

Key Informants

A special kind of interviewee is the **key informant**. Key informants may be people with a particular specialization, such as school planners, or they may represent a particular viewpoint or experience. People want a primary school in their area. How can it meet the needs of various groups? Someone with a handicapped child, someone who leads a movement to exclude girls from all but religious schools, a member of a nomadic group who can tell you the problems nomads have in sending children to schools can each tell you something about the needs that may have to be taken into account.

There is another kind of key informant who is much more difficult to find: the unusually insightful person who can provide analytical information, context, or insights in relation to what you are studying. The ability to make valid generalizations beyond one's own immediate situation and experience is in part a function of personal sagacity and in part an exposure to a range of experiences. You may be fortunate enough to find such a person. You still must use all the other techniques at your disposal, of course. No one person can provide a total picture. The reliance of some anthropologists in the past on a few male key informants alone has led to very peculiar interpretations of some societies.

Key informants can help to explain a technical process, put parts of a pattern together for you, or show how facts and experience come together. You can also use their services in a more organized way. For instance, you have identified four categories of households in a village: some send all their children to the state school, some send all their children to the religious school, some send boys to one and girls to another, and some send none. You have learned something about these families through other methods, a short survey, for example, or a card sort. Now you want to know more about their circumstances and attitudes. You could interview based on a probability sample, but you could also choose some people deliberately for their ability to provide valid insights beyond their own experience, that is, key informants.

Selecting key informants is a form of purposeful sampling (see chapter 6). You may choose them because they are typical, that is, they represent a pattern or attitude or have experienced something that you have identified as common, or you may choose them because they are unusual, that is, they hold a different view, their experience has been different, they have more expertise.

Key informants are not necessarily representative or "important" or "official" people. They can be ministry experts or teachers, but they can also be an elderly low caste person, an astute observer of the local political situation, or a mother who has helped in the school for many years. Sometimes "marginal" people are good key informants. These are people who, for whatever reason, have been forced to watch the situation at a slight remove, or have had to study and accommodate to the ways of others in order to function, such as members of minority groups. Whoever you choose, you must understand the advantages and limitations of their viewpoints.

Sometimes, of course, people see others as key not because they are able to give a broader picture, but because they or their positions are due respect, or because they have a vested interest, or because they can influence events and decisions. You may be wise to consult them, while recognizing that they are pivotal people rather than key informants.

Interviewing key informants requires careful preparation. Each probably requires a specially designed set of questions. Once again, flexibility is important. For further information see Johnson (1990) and Kumar (1989).

Group Interviews

So far, we have been discussing interviews with individuals, or perhaps with several people who are sharing a household or working together, but you can also use semistructured interviews with larger groups. Two common types are **community interviews** and **focus group interviews**. These are not cheap substitutes for surveys or individual interviews: they give people the opportunity to put aside individual considerations and discuss something in the larger community context. As researcher Budd Hall ((1981, p. 16) has pointed out: "Responses to problems offered by groups of people are not necessarily the same as the sum of individual responses of people speaking alone." Group interviews are useful for getting a general picture of a place and its needs; developing tentative hypotheses; getting a better understanding of material you have collected; or finding out what people think about the current situation, a planned project, or a completed project. You put a small number of carefully selected questions or topics to the group, for example, to parents who are worried about girls' security in school:

- What are the most worrisome situations?
- Which girls are most vulnerable?

- What is being done about the problems now?
- What might be done?
- What would this involve?
- What would it accomplish?

COMMUNITY INTERVIEWS

In community interviews you are seeking information from a "natural" group, one that comes together at other times for a common purpose, such as a village meeting or an organizational discussion. Many people may be present, although groups larger than thirty are probably too big and may have to be broken up. Individual views are not sought. The aim is to put a small number of questions to the group for general discussion: "How can the security of girls be ensured at school?" "Would a credit union help with the problem of school fees?" Sometimes a research project is based almost entirely on community interviews: for example, certain categories of beneficiaries of a project may need to be consulted in depth. If you are using community interviews for this purpose, you have to consider how you are going to select the communities. You are most likely to use some form of purposeful sampling (see chapter 6).

One problem with community interviews is that you do not necessarily know what, if anything, the group represents. Who didn't come? Why? You cannot automatically take the results of a community interview as "the voice of the people." Also, even though you are working with a group, you may still be getting individual views. Certain categories of people—elders, men, the dominant ethnic group, the wealthier, the people already involved, a faction, people who agree or disagree with what they think your position might be—may dominate the meeting. If you anticipate these kinds of problems, you can consult members of the various groups in advance, and at the meeting, say "I've already discussed this with the [elders, teachers, staff of nongovernmental organizations] and would like to hear what others here think."

Others may not be accustomed to putting their views forward or may fear repercussions, such as community ridicule, loss of business, or a host of other possible dangers. For people likely to be left out, you could say "The women who are selling food at the school may have some concerns about this. For example, is _____ a problem?" You must use this approach carefully. If people are still afraid to speak, it may sound to others as if they have no problems. If you are not really familiar with their problems, your example may direct the discussion away from their real concerns, and if you reveal something they thought they were saying in confidence, they will probably never trust you again.

FOCUS GROUPS

Focus groups differ from community discussions in a major way: in community discussions the major interaction is between the researcher and the group, whereas in focus groups the interaction is among the members, who work through an idea, issue, or problem that the researcher has selected.

Focus groups consist of people you have specially selected for their experience in relation to whatever you are studying. Usually, the group consists of six to twelve people of similar background in terms of age, sex, class, and so on who are brought together to discuss a small number of questions or issues—no more than ten—for about an hour or two. For some purposes meetings are longer, and may occur over a period of days. Sometimes a more complex strategy is used: a researcher starts out very generally with one group, allowing it to map out the discussion, and later, using what was learned from the first group, creates new types of focus groups to explore points identified in the first session.

In focus groups the group interaction, rather than answers to questions, produce the insights. People may argue points, correct one another, give exceptions, and support their points with examples from their own experiences. An approach like this can save time if planned properly.

Let us say you are trying to find out how to meet the needs of families who have to take their girls out of school to work at home. You have discovered that the girls mind younger children, take food to their mothers in their gardens, and scare birds away from the fields. What ideas do people have about how these tasks might be carried out so the girls could go back to school? This is a kind of brainstorming. Parents who are in this position know their own problems best. Feedback from them will help you to assess your ideas.

Or perhaps you have worked out some ideas for providing day care, establishing a system for sending food to mothers each day, and for deterring birds. Will these work? What else are girls doing that might not have been identified? What else do they need to go to school? You will probably need other focus groups as well. Perhaps various nongovernmental organizations have tried some of these ideas before. Their representatives may be able to tell you what happened and how you should amend your plans.

Another possibility is that your scheme has already been implemented and does not work. People are still keeping their daughters at home. Why? A focus group may help here too.

For some topics you might use a number of separate groups. For example, if some kind of further education is being considered for girls who have left school because of early marriage, you might hold a series of discussions with groups with different viewpoints: girls with children, girls without children, husbands with different levels of education and no education, and so on.

Holding a Group Interview

Controlling a community interview or a focus group can be difficult for a novice researcher. Feelings may be high, some people may overwhelm the meeting, or someone may hijack the meeting for another purpose. Kumar (1987) has outlined some techniques for preventing this. They are presented in box 11-2.

Box 11-2. Techniques for Maintaining Control of a Group Interview

- Give nonverbal cues to the respondent to stop, such as looking in another direction, showing a lack of interest, and stopping note taking.
- Politely intervene, saying that you have somehow missed the point and would like to summarize what the respondent was saying, then refocus the discussions.
- Take advantage of a pause and say that the issues raised are of vital significance and should be discussed in a separate session.

Source: (Kumar 1987).

You probably called a community interview meeting or a focus group to get more information faster. The temptation is to speed up the process even further by drawing hasty conclusions from your sessions; hearing what you want to hear; and accepting the ideas of the "more important" people, the more articulate, the more potentially troublesome, the people most like yourself. Try to ensure that people with other views are heard. Did anyone have a different experience? Does someone think an idea will not work? Is it true for the women? Is it true for people who live in different parts of the area?

Drawing conclusions that rely mainly on community interviews or focus groups requires considerable experience and skill. Beginning researchers should use a variety of techniques. A group interview approach may help you to complement information you obtained by interviewing people on their own, by observing, or by looking at records and documents.

Our Girls

In our study of X District girls (chapter 4), unstructured and semistructured interviewing would help us before and during the research.

At the beginning of our study, we might interview knowledgeable people about the social and cultural characteristics of the group and about the form of the school system (both in box 4-4).

Before we plan box 4-6 "Reasons for Completing Education at Grade 6," we should talk to individual parents, teachers, and girls to explore the range of possible reasons. We might also hold some group discussions.

During the research, if we find some unusual cases, for example, girls who are not leaving despite every obstacle, we might interview them to see what motivates them.

FURTHER READINGS TO HELP YOU

Bleek, Wolf. 1987. "Lying Informants: A Fieldwork Experience from Ghana." *Population and Development Review* 13(2):314–22.

Dobbert, Marion Lundy. 1984. *Ethnographic Research: Theory and Application for Modern Schools and Societies.* New York: Praeger.

Grandstaff, Somluckrat B., and Terry B. Grandstaff. 1987. "Semi-Structured Interviewing by Multidisciplinary Teams in RRA." *Proceedings of the 1985 International Conference on Rapid Rural Appraisal.* Khon Kaen, Thailand: University of Khon Kaen.

Johnson, Jeffrey C. 1990. *Selecting Ethnographic Informants.* Newbury Park, California: Sage.

Kreuger, Richard A. 1988. *Focus Group Interviews: A Practical Guide for Applied Research.* Newbury Park, California; London; New Delhi: Sage.

Kumar, Krishna. 1987. *Conducting Group Interviews in Developing Countries.* Washington, D.C.: U.S. Agency for International Development.

______. 1989. *Conducting Key Informant Interviews in Developing Countries.* Washington, D.C.: U.S. Agency for International Development.

LeCompte, Margaret L., Wendy L. Millroy, and Judith Preissle, eds. 1992. *The Handbook of Qualitative Research in Education.* New York: Academic Press.

McCracken, Grant. 1988. *The Long Interview.* Newbury Park, California: Sage.

Morgan, David L. 1988. *Focus Groups as Qualitative Research.* Newbury Park, California: Sage.

Spradley, James P. 1979. *The Ethnographic Interview.* New York: Holt, Rinehart and Winston.

Wolcott, Harry F. 1994. *Transforming Qualitative Data.* Thousand Oaks, California: Sage.

Participant observation usually involves

- Participating on a long-term basis in a natural setting: a village, a classroom, a government department, and so on
- Using a flexible, open-ended approach based on induction (allowing the data to unfold and lead you to conclusions, and perhaps to hypotheses)
- Drawing on whatever research techniques are useful, not only watching and doing, but listening, asking, and looking at records
- Working through the local language, if possible.

Participant observation can include

- Direct observation: looking at classroom interaction, looking at how the school's physical condition relates to users' needs, looking at house types as proxy indicators for income
- Observation with some participation: attending a wedding and asking about the ceremony, the gifts, and the participants
- Full participation for the purpose of learning how to do something or what is involved: collecting fuelwood with a group of women to understand the labor involved, the skills, the distances, the time.

Participant observation can be short term, which is what most users of this book will be doing, or long term, which is what many anthropologists do.

At its simplest level, the aim of participant observation is to describe a setting (the classroom), a process (how children are motivated), behaviors (what girls do during mathematics lessons), or interactions (whom the teacher calls on, how often, who interrupts). At its most complex, the researcher tries to understand the ideas that shape people's behavior and what this means for the issues and problems that face them. What is the role of women in the culture? What do they do? What do people think they should do? Do these beliefs differ between men and women, older and younger people, educated and those not educated, rural and urban dwellers? How? And how do these beliefs and activities reveal themselves in various aspects of life: decisionmaking, employment, religion, folklore, child rearing? Participant observation helps you to get a better understanding of complex behaviors, processes, relationships, and interactions, and it is particularly good for understanding something in the larger context.

Uses

You can use participant observation as a preliminary technique to get enough information to plan a study or to create useful questions, or you can use it as a strategy in itself. You can also use it as a check on other techniques: teachers say that they treat boys and girls the same way, so why are the girls always cleaning the blackboards? It is valuable when you need to understand something in its natural setting: what actually happens in a classroom, as opposed to what teachers are taught to do in training college. You can use it for negative case analysis, that is, disproving something: teachers say that they call upon boys and girls in equal numbers, but a simple count of observations shows they do not. It can help you to make sense of information you get through other techniques by providing context: a project to set up a local market has failed, and women still take their produce to a distant market once a week. By observing their activities, you might find that their marketing activities have a lot of other functions besides selling. They might be getting a sense of prices, seeing friends and relatives, having a day out, bringing home some news.

Participant observation has been used quite extensively in educational research, from long-term studies of schools, classrooms, or staff, such as Wolcott's (1973) study, to Obura's (1991) studies of classroom interaction in Kenya. It has not been as widely used in development projects, but researchers such as Chambers (1991) and Salmen (1987) have commented on the need for it. Indeed, Salmen attributes the failure of a World Bank project in part to overreliance on the survey approach for identifying needs, and points to the necessity of using more qualitative research, including observation.

Many years ago Whiting and Edwards (1973) did a classic observation study in six countries, including one African country, Kenya. They examined common stereotypes about boys' and girls' behavior, including the idea that girls are more passive and more nurturing and boys are more aggressive and more dominant. They observed sixty-seven girls and sixty-seven boys between the ages of three and eleven in a total of 3,000 observations. Each term was carefully defined in observable ways. Dominance, for example, was defined as one child interrupting the ongoing behavior of another child to get that child to do what the first child wished. A number of interesting findings came out of this study, most of which the investigators could not have obtained using any other research method. For example, contrary to expectations, they found that girls dominated as much as boys, but simply used different modes. While boys dominated "egotistically" ("I want you to do this because *I* want it"), girls dominated by "invoking authority" ("Mother won't like it if you..." or "God says..."). They also found that everyone felt free to issue more "mands" (commands, interruptions, and so on) to girls than to boys.

Participant observation is not useful for things people will not let you see: for example, spouse abuse is not a likely subject for observation, participant or otherwise. It is not useful for making generalizations to other settings unless you have done careful sampling to select the situations you are observing. It cannot be used to establish causal relationships, although as we saw earlier, it can be used to disprove. It also is not useful for studying a large mixed situation, for example, one involving many different economic, social, and ethnic groups, but you could focus on a more limited aspect of the situation, such as how two ethnic groups interact in a classroom.

Doing Participant Observation

Everyone looks at the world through spectacles colored by his or her culture, experiences, class, age, sex, training, and so on. Participant observation requires that we shed our spectacles as much as we can. Looking at a village through middle-class eyes will only show us how this village differs from our own middle class neighborhood, which is not of great interest in a research project. People tend to notice the exceptions, the unusual, the strange. A white student who rarely sees black people may describe a crowd this way: "There was a big crowd at the bus stop. A black man was playing a fiddle." We have no idea if the other people were black from this description, but probably not. To the student, white was not worth mentioning. Sometimes, however, it is the usual that you want, the ordinary things that normally go unnoticed or unanalyzed: the daily routine in the classroom, in the village, or in the office, not what happens on ceremonial days, or days when an official comes to visit.

Doing participant observation seems easy, after all, everyone is a participant in life, and everyone observes. Because of this, participant observation also seems the most natural of research techniques. In daily life, everywhere in the world, most of us get our information this way, whereas few of us manage our affairs by giving people questionnaires. But the way we observe in daily life and observation for research purposes are different. Participant observation is more "primitive" or "naive," as we will see.

Try this observation exercise. Choose a small setting (not a crowd or a busy event), and observe for a few minutes. You might look at a group of teachers planning how to encourage greater parental participation in the school, or a girl trying to study at home when other people are around, or some boys and girls deciding on how to play a game. Write down what you saw, in as much detail as you can remember. Pretend you are going to send this to someone in a very different country, who will only have your account of the event. Remember to try to shed your spectacles: it will not help this person to see the scene only through male eyes or urban eyes. Now answer these questions:

THE SETTING

1.... Where was the observation?

2.... What was the time?

What case studies and participant observation are good for:
Examples:
  Getting an in-depth picture of a situation, a process, or an experience
  How has a particular principal managed to make schooling so attractive to local people? A case study of her approach would teach us something.
  Teenage schoolgirls limit their future options when they become pregnant. A case study of one well-chosen girl's experiences would illustrate this.
Participant observation:
  Seeing what happens, and perhaps participating.
Examples:
  What is involved, in terms of time, effort, and skills, in girls' domestic work activities?
  Do girls behave differently in single-sex versus mixed-sex schools?
Sample studies:
  Case studies—Wai, Nyakwea. 1994. *Images of Women in African History: Wangu Wa Makeri: A Pioneering African Feminist.* Profile No. 2. Nairobi: Kenya Forum for African Women Educationalists. Participant observation—Schuster, Ilsa. 1979. *New*

12

Two Qualitative Strategies:

Case Studies and Participant Observation

summary

Case studies and participant observation are not usually grouped together. Here they are, because both are ***strategies****, that is, combinations of techniques, rather than single ones.*

Case studies *allow you to collect and present information in a way that provides more context. They are good for showing how something happens or works in a real life situation.*

Participant observation *is a strategy for interviewing, observing, and sometimes participating. It can be used to get preliminary information, to check other information, and to understand something in its larger context.*

You may remember that in chapter 7 we emphasized the importance of triangulation of techniques, that is, using several techniques to get the same information. Both case studies and participation have built-in triangulation: each involves using a variety of approaches to get a better understanding of what you are studying.

CASE STUDIES

Case studies provide insights into how and why something works in real life. Consider this. If you added up all the answers to 1,000 questionnaires on parents' attitudes toward the value and costs of education, you could assemble them to produce a picture of the dynamics of how, when resources are scarce, a family decides which children go to school and which do not. In a case study, you examine attitudes, behaviors, and the environment all together, in a natural setting, to give you a better understanding of how things work. You can do case studies of individuals (girls who have become pregnant and managed to stay in school), of programs (the kinds of programs that enable them to do so), of aspects of organizations and institutions (why a school has closed), and of processes (how staff of a particular department make decisions).

You can use case studies at the beginning of an investigation to obtain enough understanding to create appropriate questions and choose appropriate techniques; to illustrate patterns you have identified using other methods; to show variations on a pattern that you have identified, that is, how it manifests itself in different ways; to show exceptions; and to show the difference between the ideal and the real (what people say they would like to do and what they really do in various circumstances). Experienced researchers can also use case studies as the main form of research in a study (see Yin 1989 for a discussion of this approach.)

As a beginning researcher, you could probably make the best use of case studies to get some initial insights into a situation or to illustrate patterns you have discovered. Suppose you have found that while most girls from poor rural backgrounds grow up to live in poverty and to do the same work that their parents performed, others become professionals, large-scale entrepreneurs, political figures, and so on. What made the difference in these women's lives? Case studies use almost all the research techniques in the social scientist's tool kit. Let us say you did a survey of these women and found certain patterns emerging: they had a dynamic headmistress at school, a supportive parent, were good at a particular subject, took a particular approach toward life, and so on. One factor is unlikely to be the cause. This is what a case study is good for: showing how factors and circumstances come together over time. You can select your case studies from among women who seem to illustrate the pattern, and build a picture of them. Interview the women, their families, their teachers, and anyone else who seems relevant. Look at documents such as their old school records. Not only can they give you information, they can tell whether the timing was important. Was a particular headmistress present at a particular stage in their schooling? Observe how the women behave, their attitudes, how they go about things now. Do these give you any insights into the qualities that have helped them? Using material from all these techniques and sources, you try to show how these factors worked in real life.

Of course, you need to do more than one case study, particularly if several patterns are evident or if you are using this as one of your most important techniques. Look for cases that contradict your pattern as well. What can you learn from them? Why did the factors you have identified not work in this particular case? Or why did someone who experienced none or only a few of these factors succeed? You can create a much more sophisticated understanding this way.

A special kind of case study is the **life history**, in which the patterns you are seeking to identify or understand are manifested in the context of someone's life story. This is a particularly good approach if what you are studying needs to be understood over time. You can construct life histories from several sources, including interviews and written materials such as records and diaries, if they are available. Robert Burgess (1983), an anthropologist, used teachers' life histories along with many other techniques in his study of a British comprehensive school.

Another way of using case studies is to create small panels, such as families or work groups, and monitor them over time. Using this approach you can see time differences, how events impinge on strategies, how the group's composition affects the division of labor. In other words, you are looking at the dynamics of change. Longhurst (1981, p. 24) argues that such case analysis is more useful in rapid research than is extensive sampling: "Even where quantitative data is necessary in an academic study, the careful observation of a few case-study families, albeit at a sacrifice of part of a large sample size, can provide insights that survey techniques completely ignore."

PARTICIPANT OBSERVATION

In its most narrow definition, participant observation provides information about what people let you see them doing, as opposed to the survey, which gives you information on what people say they are doing, what they say other people do, or what they say should be done. However, participant observation, as practiced by anthropologists, who have been its main users, is a strategy rather than a single technique.[1]

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[1] In your reading you will find that some authors, particularly those concerned with rapid appraisal, have distinguished between participant observation and direct observation. The first is longer term, usually focused on sociocultural phenomena, and more concerned with the insider's viewpoint, while direct observation need not restrict itself to any of these. However, many traditional participant observation studies are short term, look at physical objects, and take an outsider's viewpoint, so the term is being used here to cover both types.

3....What season was it?

4....What was the weather?

5....What was the setting?

6....What objects were in the setting (on the floors, walls, ceilings, if inside)?

7....What were the sizes, materials, colors, textures, shapes?

The People

1....Who was there?

2....What were they wearing (colors, textures, designs, hair styles, and colors)?

3....What were their approximate ages, heights, weights?

4....What were they each doing?

5....What were the other people doing while people spoke or carried out actions?

6....What did each person say?

7....What gestures and body movements did they use?

8....How did others respond?

9....Where were the people in relation to each other? Did this change?

You

1....Where were you? What were you doing: sitting, standing, participating? Did you seem to be noticed? Did this change?

2....Were you part of the event before you began to observe? Did you let people know what you were doing? Once you began, did anything change? Did their behavior appear to change, toward you or toward the others? How?

3....How did you feel doing this exercise? If people did not know you were observing in this way, what would they have thought if they knew? How would they feel if they read your notes? How would you feel?

If you gave the person in another country some actors and a stage, would he or she be able to recreate the scene, send a film of it back to you, and present a good account of what you saw? The answer is probably not. First-time observations are usually poor. What did you overlook? What were you good at? Describing people? Dimensions of objects? Conversation? Did you process or summarize the information by putting judgmental nouns (shack, rags, crone), adjectives (handsome, nervous, short, old), and adverbs (nastily, frequently, rudely) in your notes, rather than describing what you saw that made you draw those conclusions?

Because we observe every day, and sometimes save our lives through good observation in places like busy roads, why are we so bad at it in exercises like this? Daily observation involves getting just enough information to draw a conclusion based on past observation and experience. For example, you are walking along a road and you see a yellow creature approaching. You do not pause to say "Here is something interesting; a mammal approximately eight feet long and four feet high, with a mane six inches long, a tail over two feet long with a tuft at the end, and incisors approximately three and a half inches long." You probably shout "A lion!" and run. Our ancestors probably did the same, which is why we are here today. You are not observing in the research sense. You know what a lion looks like, and in a flash you related some basic features to your accumulated knowledge. This kind of observation—the ability to relate the general configuration to experience—is what has enabled all of us to survive. We process the information and draw conclusions in the most economical way we can. Our culture also helps by telling us how to read what we see, what it means. Sometimes, of course, our processing is wrong, and dangerous; we say "Ah! A dog," when perhaps we should be saying "Ai! A wolf!"

Working with people who are different from ourselves—rural if we are urban, Tonga if we are Bemba, women if we are men— can lead us to read a situation through our own eyes and process incorrectly. We say "Ah! women helping on the farm," when we should be saying "Women doing the farming."

To do basic observation that is useful for research, you need to take one step back—before the processing, before the conclusions—and be able, consciously, to record what you actually see, not what you read in the situation. Later, when you have more information from using a variety of different methods and a variety of sources, you can begin to think about what it means. If you do not know much about a situation, a people, or a culture, this approach is essential to keep you from imposing your experience on things that you cannot interpret properly through your own background. And if you do know a lot about a situation, you should also use this approach to bring a fresh eye to it, to avoid making snap judgments, and to allow for the possibility of drawing other conclusions and making other interpretations.

Most of the famous anthropologists who have used participant observation were never trained in its use, they were thrown in head first. The experience of working with an old hand is probably the best training you can get, because participant observation requires other skills in addition to observing: the ability to relate to other people, to "mix in," to hold your judgment while at the same time being able to separate the relevant from the irrelevant.

Your own observations are likely to be much shorter than those of anthropologists, who may spend a year or more living in a community, and who are bringing an extensive social science training to their analysis.You are also unlikely ever to do an observation like the one in our exercise, the purpose of which was to test your abilities. It was a "free" observation: you were to observe everything. In a real project your observation will be more focused. If you are observing whether teachers reward male and female students equally, you are hardly going to be noting the number of electrical outlets or the string hanging on the end of the map, although for some projects these could be important.

What Do You Look At?

When you first embark on participant observation, you can start by finding standardized sets of observational categories. One such set is Bales' Interaction Process Analysis for studying group interaction (Bales, 1952, 1970), which many social scientists think is cross-culturally valid. Another is Flanders' (1970) system for classifying classroom behavior. The researcher codes ongoing behavior into one of Flanders's ten categories every three seconds.

In all, nearly 100 standardized systems for observing children are available (see, for example, Boyer, Simon, and Karafin 1973). Some of them are quite specific and, of course, not all are applicable in societies other than the ones for which they were designed.

World Bank researcher Ward Heneveld, in his study *Planning and Monitoring the Quality of Primary Education in Sub-Saharan Africa* (1994), has developed a large number of indicators for factors that determine school effectiveness. Many of these can be studied through observation; others through interviewing, analyzing records, and testing. Table 12-1 is an example that shows indicators for "high learning time," most of which are observable.

If you are not using standardized categories, where do you get your instructions on what you should observe? Look at your research outline, if you have made one. What points in it are best obtained through observation or would benefit by combining observation with other techniques? Where will you observe them?

For an event, you might simply want to know

- Who is here? What is each person supposed to do? Why?
- What does each actually do? Why?
- How often does it happen?

- Is the event typical?
- How is it like other events of this sort?
- How is it different?
- What do the differences mean?

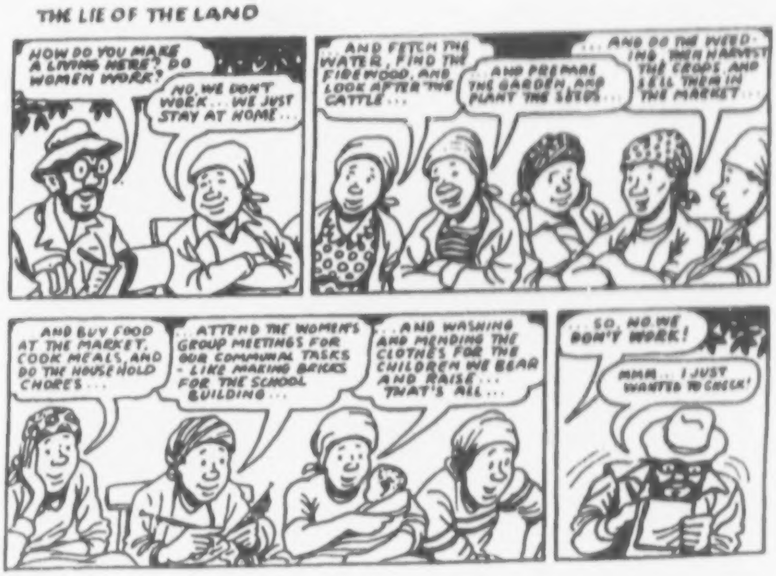
Table 12-1. Teaching/Learning Process: High Learning Time

<table>
<tr><th colspan="2">High learning time[a]</th></tr>
<tr><td colspan="2"><i>Definition</i>: A school has high learning time when:
1. The amount of school time used for learning is maximized.
2. Classroom learning time is used efficiently.</td></tr>
<tr><td>Requirements</td><td>Indicators</td></tr>
<tr><td>1. Maximized school learning time</td><td>a. School events are scheduled so as to avoid disrupting learning time.</td></tr>
<tr><td></td><td>b. Time-use allocation for subjects is clearly established and followed by teachers.</td></tr>
<tr><td></td><td>c. School day and individual classes start and end on time.</td></tr>
<tr><td></td><td>d. Extra learning time is provided for students who want or need it.</td></tr>
<tr><td></td><td>e. There are firm and enforced policies regarding tardiness, absenteeism, and appropriate classroom behavior for both teachers and students.</td></tr>
<tr><td></td><td>f. Students are achieving tasks assigned at a high rate of success.</td></tr>
<tr><td>2. Efficient use of classroom learning time</td><td>a. Noninstructional classroom time is minimal.</td></tr>
<tr><td></td><td>b. Teachers maintain a brisk pace for instruction with clear stop and start clues and quick introductions of topics.</td></tr>
<tr><td></td><td>c. Teachers are aware of whole-class needs in pacing lessons, providing assistance to individuals, setting and supervising seatwork, and encouraging out-of-class work for those who need it.</td></tr>
<tr><td></td><td>d. Teachers correct and return students' assignments and tests quickly.</td></tr>
</table>

a. High learning time is the amount of time a student spends on a learning activity during which he or she is achieving a high rate of success.

Source: Heneveld (1994, p. 43).

Or perhaps you have taken an emic approach ("what do these people see themselves doing?"), and discovered patterns: people tell you that there is men's work and women's work and list the tasks that each perform. It may sound like women do not do much (see the cartoon). Then you observe for a few days and see that women's work involves a lot more than you were told. These aspects of women's work do not have names, but involve attending to others, being responsive to requests, making the preparations and arranging so that others can carry out their activities, doing a lot of the filling in, and performing the services that keep the whole system going.


THE LIE OF THE LAND
HOW DO YOU MAKE A LIVING HERE? DO WOMEN WORK?
NO, WE DON'T WORK... WE JUST STAY AT HOME...
...AND FETCH THE WATER, FIND THE FIREWOOD, AND LOOK AFTER THE CATTLE...
...AND PREPARE THE GARDEN, AND PLANT THE SEEDS...
...AND DO THE WEEDING, THEN HARVEST THE CROPS AND SELL THEM IN THE MARKET...
AND BUY FOOD AT THE MARKET. COOK MEALS, AND DO THE HOUSEHOLD CHORES...
...ATTEND THE WOMEN'S GROUP MEETINGS FOR OUR COMMUNAL TASKS - LIKE MAKING BRICKS FOR THE SCHOOL BUILDING...
...AND WASHING AND MENDING THE CLOTHES FOR THE CHILDREN WE BEAR AND RAISE... THAT'S ALL...
...SO, NO WE DON'T WORK!
MMM... I JUST WANTED TO CHECK!

Source: Reproduced from *WIDNOTES*, a newsletter published by the Women in Development Committee, Economic Development Institute, World Bank.

A final way of getting questions involves the grid approach discussed in chapter 4. Work out the subject of your observation: for instance, a girl's work day, women's participation in village meetings, or decision-making meetings in a school. Then use the boxes in bold lines in the grid to get a basic description of whatever you are looking at. The questions in the other boxes will not all be relevant; scan them and circle those you think might be useful to watch for. Of course, you will not get all your information simply by observing. The grid approach also helps you to develop questions about the event, activity, or process.

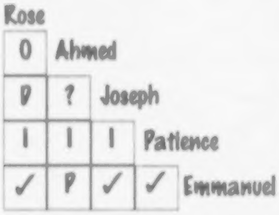
Recording Your Observations

How do you record participant observation? One way is by using the notetaking method described later in chapter 15. You must take notes of your observations, at the scene if possible, and then write them out more fully some time later the same day. You will think you will remember, but you should take a note of the following fact, if nothing else—you won't. As new information piles up in your brain each day, you will lose what you learned in previous days except for the strange, the unusual, and things that have already begun to form an expected, and perhaps incorrect, pattern in your mind.

However, you may be observing something that lends itself to a quick-recording device. Let us say that you have been observing many instances of children in a classroom while they are planning science projects. You have noticed that boys and girls participate in different ways, and you want to characterize their behavior. Your observations show nine major types of interaction:

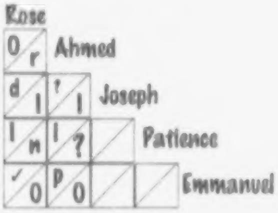
- Giving orders (0)
- Accepting orders (✓)
- Refusing orders (R)
- Agreeing (A)
- Disagreeing (D)
- Not participating (N)
- Giving information (I)
- Asking for information (?)
- Peacemaking (P)

You record what is happening on a regular basis, depending on what you are observing. This grid shows five children interacting:



	Rose	Ahmed	Joseph	Patience
Ahmed	0			
Joseph	D	?		
Patience	I	I	I	
Emmanuel	✓	P	✓	✓

You can see that Rose gives an order to Ahmed, disagrees with Joseph, gives information to Patience, and accepts an order from Emmanuel. Ahmed asks Joseph for information, gives information to Patience, and engages in peacekeeping with Emmanuel. Patience accepts an order from Emmanuel. However, this shows only one-way interaction. A slight modification of the grid allows you to show the other person's response. By using upper case letters for what happens first and lower case for the response, you can show which of the two interactions occurred first:



	Rose	Ahmed	Joseph	Patience
Ahmed	0 / r			
Joseph	d / I	? / I		
Patience	I / n	I / ?	/	
Emmanuel	✓ / 0	P / 0	/	/

So while Rose gives an order to Ahmed, Ahmed refuses it; she disagrees with Joseph, who has given her information; she gives information to Patience, who is not participating; and she accepts an order from Emmanuel, who has given her one. Ahmed asks a question of Joseph, who has given him information. He gives information to Patience, who has asked him a question. He engages in peacekeeping with Emmanuel, who has given him an order. And so on.

To record behavior over a period of time, you would need to have a number of these recording forms prepared in advance. In using a form such as this, you are hoping to see a pattern emerge, if one exists. Perhaps you discover that while girls give orders, they are accepted by other girls but not by boys; or that girls ask for information more than they give information; or that boys engage in more peacekeeping with other boys than with girls.

Suppose you want to record how often a teacher calls on boys, on girls, and the nature of the interaction. Did the teacher simply acknowledge a correct answer or reward with praise? Did the teacher pass over an incorrect answer, help the child, or punish? You can design your own recording form, but before you begin, looking at some that other people have developed is useful to see what is involved. The one shown as table 12-2 is adapted from a classroom study in Ghana (Schubert no date.) The sample observation shows what actually happened in the classroom. The form shows how it was recorded. In this particular observation, which dealt with language use, observations were made every five minutes for only four students at any one time (Girl 1, Girl 2, Boy 1, Boy 2, shown on the form as G1, G2, B1, B2.) Careful precautions have to be taken to ensure that every observer understands the form and records the events in the same way. In this study, two observers (one researcher who worked with the teacher on other tasks as well and one other member of the team) recorded the same events independently, and a system was developed for computing the percentage of agreement. When that percentage was exceeded, a system was developed for handling discrepancies, as follows:

> Following the observation, the two observers should compare their Forms. To compute percent agreement, the two observers should focus on the G1, G2, B1 and B2 columns in the Totals section of the form. Using only these columns, they should count up the number of times the total for each of the 26 categories for each pupil is different and the number of times the total is in agreement. The number of agreements/disagreements should total 104. There should be no more than 20 instances of disagreement. Discrepancies should be discussed. If a discrepancy cannot be resolved, the coding done by the team member who is NOT working with the teacher should be recorded (Schubert no date).

Because you are likely to use observation for a purpose other than the one shown in this chart, there is no point in following these guidelines. They are given here to show how careful you must be in planning all aspects of the observation, including resolving differences.

Sample Pupil Observation

9:35-9:40

Context = Whole class/teacher led lesson
Content = English
Teacher tells children in English to copy what is on the chalkboard in their exercise books. G1, G2, and B1 comply. B2 doesn't have an exercise book. The teachers asks the children if they know what to do and all the children respond in choral English, "Yes teacher."

9:40-9:45

Context = Whole class/teacher not participating
Content = English
For most of the five minutes the teacher sits at a desk. G1, G2, and B1 write in their exercise books. A child (not one being observed) asks the teacher a question in English. The teacher clarifies the task in English and asks the class to respond in choral English.

9:45-9:50

Context = Whole class/teacher not participating
Content = English
For most of the five minutes the teacher sits at a desk. G1, G2, and B1 continue to use their exercise books.

9:50-9:55

Context = Whole class/teacher not participating
Content = English
For most of the five minutes the teacher sits at a desk. The teacher asks B2 in English where his book is. B2 responds in Ghanaian. The teacher asks G1 to go collect the textbooks. In English, G1 asks where they are. The teacher responds in English. G1 leaves the classroom near the end of the five minutes.

Table 12-2. Example of a Pupil Observation Form

Date: **25 May**
School: **School Name**
Class: **SS**

Start Time: **9:35**
End Time: **10:05**
Observer: **Your Name**

PUPIL OBSERVATION FORM

Five minute intervals	9:35-9:40				9:40-9:45				9:45-9:50				9:50-9:55				9:55-10:00				10:00-10:05			
	G1	G2	B1	B2	G1	G2	B1	B2	G1	G2	B1	B2	G1	G2	B1	B2	G1	G2	B1	B2	G1	G2	B1	B2
Context	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	A	D	D	D	A	D	D	D
Content	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		E	E	E		E	E	E
Exposure to Print																								
Child has textbook	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child uses textbook	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child shares textbook	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child uses shared textbook	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child has exercise book	X	X	X	0	X	X	X	0	X	X	X	0	X	X	X	0		X	X	0		X	X	0
Child uses exercise book	X	X	X	0	X	X	X	0	X	X	X	0	X	X	X	0		X	X	0		X	X	0
Child has other print	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child uses other print	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Print on chalkboard	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X
New print on chalkboard	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Visual aids available	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Visual aids used	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Oral-Language Speaking																								
Child speaks English to Teacher	0	-	-	-	-	-	-	-	-	-	-	-	X	0	0	0		-	-	-		-	-	-
Child speaks English to other child	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child+Class choral [recite] English	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child speaks Ghana to Teacher	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X		-	-	-		-	-	-
Child speaks Ghana to other child	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Child+Class choral [recite] Ghana	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Oral Language-Listening																								
Teacher speaks English	X	X	X	X	X	X	X	X	0	-	-	-	X	X	X	X		X	X	X		X	X	X
Other children choral English	X	X	X	X	X	X	X	X	0	-	-	-	-	-	-	-		-	-	-		-	-	-
Other child speaks English	0	-	-	-	X	X	X	X	0	-	-	-	0	X	X	X		-	-	-		-	-	-
Teacher speaks Ghana language	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		X	X	X
Other children choral Ghana	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-
Other child speaks Ghana	0	-	-	-	-	-	-	-	-	-	-	-	X	X	X	0		-	-	-		-	-	-

CONTEXT

A = Small group teacher present
B = Small group teacher not present
C = Large group/whole class led by teacher
D = Large group/whole class assigned work without teacher participation

CONTENT

E = English
M = Mathematics
SS = Social studies
Sc = Science O = Other

OBSERVATIONS

o = No
x = Yes
- = No change
A = child leaves room

PUPIL ID#

Girl 1: 8
Girl 2: 11
Boy 1: 6
Boy 2: 9

Notice that when G1 speaks English, G2, B1, and B2 are exposed (listen) to English. Similarly, when B2 speaks Ghanaian, G1, G2, and B1 are exposed (listen) to Ghanaian.

9:55-10:00

Context = For the children who are in the classroom, whole class/teacher not participating; because G1 is not in the classroom, the context for her = A
G2 and B1 continue working in the exercise books. Teacher tells children in English to keep working.

10:00-10:05

Context = For the children who are in the classroom, whole class/teacher not participating; because G1 is still not in the classroom, the context for her = A
For most of the five minutes the teacher continues to sit at a desk. The teacher uses Ghanaian language to tell a child (not one being observed) to stop misbehaving. The child doesn't respond audibly.

If you decide to observe, should you tell people what you are doing? Will they change their behavior as a result of your presence? You are observing all the time, and cannot request permission from everyone who passes your line of sight, but if observation is a primary part of your research, and people would not participate if they knew what you were doing, you should explain in general terms what you are trying to do—you want to see a classroom in operation or a wedding ceremony— and seek permission. Then you have to ensure that the people you observe do not suffer as a result of what you write or report about your observation.

As you can imagine, extended observation notes in written form contain information on people and contexts that makes them readily identifiable. If others read these notes, including those being observed, they will not understand why you have recorded such mundane things. You must think something is wrong or something different is going on: ordinary things are not worth recording. People will then want to know why you chose them, what is so strange or interesting about what they were doing, and are you trying to ridicule them by writing down such "private" things. (Even when they are performed in public, we tend to think that others do not notice when we are glancing at the clock or rolling our eyes when a boring person begins a long speech.) They will not always understand that you are studying patterns and processes, not individuals, and may be fearful that your study will have consequences for them individually. (As it will, of course, in a small, one-teacher village that is the only fishing village in the country, if you write in your study that "a teacher in a fishing village never called on any girls.") This problem is also serious in academic research, where the results will be published in books and journals that have a wide circulation, and that provide little opportunity for those studied to respond.

In all research, you must protect the confidentiality of the information you receive. This is even more important in participant observation for two reasons: first, people will not necessarily have agreed to participate, and observation often includes what people think of as invisible behavior, no matter how public the setting; and second, if the notes are to be of any use, the amount of detail you record makes people easily identifiable. You have a responsibility to ensure that no one reads and uses your notes to the detriment of the people you are working with. For participant observation notes, a good rule of thumb is that no matter whom you are working for, your notes belong to you and you have sole responsibility for their security. Observer teams have to work out ways of sharing information and still protect the people in the notes.

What do these "dangerous" notes look like? Let us look at two examples, one poor and two better sets of notes. The more detailed notes can be more offensive to people, because they will assume that there is something wrong with the behavior you have recorded. Otherwise, why bother to write it down?

"The students were disorderly in the classroom, but in the end the boys cooperated in reaching a decision."

could be

> A man of about twenty-five came into the classroom and said, "Children, I am your substitute teacher for the day." A pile of papers, three books, his hat, and a paper package fell out of his arms onto the floor. A sandwich and bananas fell out of the package. Eight of the ten male students left their desks and picked up the things from the floor. When they returned to the desks, they sat in different seats. One in the back near me said, "Let's change our names for the day." "Yes," said another, "I'll be you and you be me." "Where are you in your lessons, John? Your teacher said you are to do fractions this morning," the substitute said. The boy pretending to be John said, "No, today we do art all day long, but first we sing." The boys all began to sing a Bob Marley song. The four girls in the class caught a dog that had come in, and were putting the teacher's hat on it.

or it could be

> The teacher said to the Grade 4 students "We're going to stop class a little early today to cook breakfast for the inspector's visit. Who would like to help?"
> Modu said, "I would."
> The four other boys in the class laughed. Mariama, who was sitting behind Modu, poked him in the ribs. "Boys can't cook," she said. "You'll kill the inspector."
> "Cooking is women's work," said Robert, who is about a year older than the others.
> "Who said so?" asked Modu, who had tears in his eyes.
> "God said so," said Robert.
> "God did not say that," said Leila. "My father is a chef."
> The teacher, who had been watching all this, handed some vegetables and a brush to Robert. Robert put them on his desk. The teacher looked at him. He picked up the brush and started scraping.
> "When I grow up," said Robert, "my wife is going to do all the work in the house." He waved the brush at Leila.
> "Yes," said the four other boys.

So far, we've been discussing direct observation, which is sometimes called **obtrusive**. You, as the observer, are part of the situation and have an effect on it, whether you like it or not. **Unobtrusive** observation, first made popular by Webb and his associates in 1966, involves looking at something after the fact, either at what people have left behind (**accretion studies**) or what they have taken away (**erosion studies**). In both cases, you have no effect on people's behavior because they are not there. For example, you can figure out what books in the library are the most used by the wear and tear on them (erosion), or which museum displays are most popular by the number of hand prints that the staff have to wash off every day (accretion). These may be considered **proxy indicators**—something that can be used to give an estimate of something else—for example, here hand prints are taken to indicate popularity. As with all proxy indicators, you have to be sure the indicator reflects what you think it does. If the floor in front of the museum display is uneven or the light in the display is poor, hand prints may indicate something else.

This kind of unobtrusive observation is common in development-related studies. Researchers use roof types, wall materials, fencing types, and so on as proxy indicators for wealth. Experienced teachers and inspectors often use unobtrusive measures without even knowing it. When an inspector says "I only have to take one look at ____________ to know what kind of school it is," that is a proxy indicator. What proxy indicators could you use in your village or community to indicate wealth? To indicate healthy children? What are the exceptions to these "rules?" (Look back at chapter 7 for more on proxy indicators.)

Analysis of Observations

Analysis of participant observation notes is guided by the question you are asking or the hypothesis you have formed. Suppose you suspect that teachers call upon girls in class only when one or more conditions prevail: more girls than boys have their hands up and/or no boys are engaging in disruptive behavior. You can disprove the hypothesis if you find negative cases, that is, teachers sometimes call upon girls irrespective of these conditions. You may also be able to show that one or more conditions must be present before a teacher calls on a girl. Analyzing the kind of data that participant observation produces is discussed in more detail in chapter 17.

Our Girls

Could we use these strategies in our study of X District girls?

We might want to interview some girls who are continuing on in school despite all obstacles. But we might want to go further, and do a few very detailed case studies of such girls to get a deeper insight. And we might do a case study of a school in which a lot of girls in bad circumstances manage to stay on. What does the school do?

Participant observation would certainly be useful in box 4-6, the section on domestic responsibilities. What are the girls doing at home? Is there any other way of handling these tasks?

FURTHER READINGS TO HELP YOU

Bales, R.F., and S.P. Cohen. 1979. *SYMLOG: A System for the Multiple Level Observation of Groups*. New York: Free Press.

Chambers, Robert. 1991. "Shortcut and Participatory Methods for Gaining Social Information for Projects." In Michael M. Cernea, ed., *Putting People First*, 2nd ed. New York: Oxford University Press.

Fine, Gary Alan, and Kent L. Sandstrom. 1988. *Knowing Children: Participant Observation with Minors*. Newbury Park, California: Sage.

Jorgensen, Danny L. 1989. *Participant Observation: A Methodology for Human Studies*. Newbury Park, California: Sage.

Salmen, Lawrence F. 1987. *Listen to the People: Participant Observer Evaluation of Development Projects*. New York: Oxford University Press.

Schubert, Jane. No date. *Instruments Used in Improving Educational Quality Project, Ghana*. Arlington, Virginia: Institute for International Research.

Spradley, James P. 1980. *Participant Observation*. New York: Holt, Rinehart & Winston.

Wolcott, Harry F. 1973. *The Man in the Principal's Office: An Ethnography*. New York: Holt, Rinehart and Winston.

What other qualitative approaches are good for:
Almost all of these are aids to interviewing and to help people to convey their ideas more fully.

Examples:
You want to understand the husband's role in decisionmaking about schooling. You do not want to ask a woman about *her* husband. Make up a story in which a husband and wife discuss their children's education. Leave it unfinished. Ask her what might happen next

Show one randomly selected group a picture of a male teacher. Ask the members to discuss his character, abilities, life, or to rank them on a scale. Show a picture of a woman teacher to another randomly selected group and repeat the process.

Sample Studies:
Serpell, Robert. 1993. *The Significance of Schooling: Life Journeys in an African Society.* Cambridge, U.K.: Cambridge University Press.

13

Other Qualitative Approaches

summary

This chapter looks at some less conventional methods, which might give you ideas for developing new techniques yourself. Here we look at ***story completion;*** *using* ***pictures, games,*** *and* ***traditional stories; content analysis; role play,*** *and* ***drawings.*** *Although some of these techniques are adapted from psychology, they do not give you insights into people's personalities; they simply provide you with other ways to encourage people to talk about themselves and their experiences.*

The following approaches are less commonly used in studying social and cultural issues in relation to education. Some are borrowed from fields such as psychology, and are not used to draw inferences about people's personalities, but to get them to help you identify cultural patterns. Some fall into a category that anthropologists call "analysis of cultural productions," that is, looking at literature, songs, pictures, and films produced by people of a particular culture, which tells you something about people's values and interests. Some of these approaches can be time consuming, and are not appropriate in all cultures.

STORY COMPLETION OR SENTENCE COMPLETION DEVICES

Story completion devices are simply another way of asking an open-ended question, but ideally they place it in a more realistic context, or they shift the focus from the person herself to a hypothetical situation or person. For example:

> **A guidance counselor visited Gifty's school and told the girls there that carpentry and mechanics were not for boys only, and that girls too could train for these skills. Gifty liked the idea of mechanics. Her parents would have preferred that she study something more "ladylike," but said it was up to her. Some of her friends encouraged her, but others laughed and said she would never get a husband. Gifty finished her training. Please tell me how you think her story continues.**

or

> **Sarah is a young woman very much like you, married with a child. She too wants to give her family the best she can. She left school at Primary 6 to marry and would now like to take evening classes at the skills training center.**

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Her husband left school at Primary 2 and doesn't see why she needs more education. What is the biggest problem Sarah might face? Is there any answer to it? What is another problem she might have?

or

Therese had to leave school early and now she wants to make sure that her daughters get a good education. Her husband says they can only afford to educate their sons. He says the boys will have to make a living and the girls can always get married. Many others in the family agree with him. What do you think Therese can do? How will she do it? What will that achieve? What problems will she face?

or

The people in a village are worried about their school. Their daughters are getting very "modern" and scorning the ways of the village. People want their daughters to be educated, but at the same time, they are concerned. What might they do? What will that accomplish? What problems might they have?

You can also offer sentences for people to complete, such as

Many women fail to achieve their goals in life because...
Men seem to take most of the decisions in the family because...
If parents haven't enough money to give all their children a good education, they should...
Once a girl goes to school, she...

You may have been on the receiving end of devices like this as part of psychological testing. The examples here do *not* test psychological or personality characteristics; they are simply stimuli for a guided discussion. Sometimes they can be quite useful in group discussions, because you get a greater variety of comments, and people will challenge or supplement other people's solutions. Bear in mind that people will not necessarily tell you what really happens, but what they think should happen. You might then ask, "Did that ever happen to you or someone you know? What happened?"

PICTURES

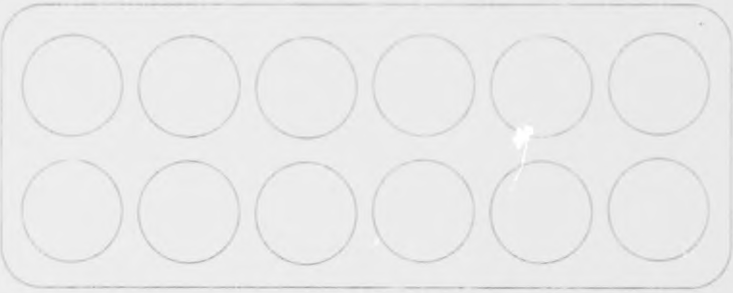
You can ask people to tell you what is happening in a picture or drawing. Remember, all pictures are culture-bound. Every society has different ways of representing and "reading" three dimensions in two-dimensional form. Pictures can also contain culturally unfamiliar objects or show representations that are culturally unacceptable: for example, in some Arab societies, the human figure should not be represented in a drawing. Having worked out these problems, you may be able to use pictures to get people to expand on their thinking. For example, show a picture of a group of girls and ask what are they talking about. What are boys in a similar picture talking about? A husband and wife seem to be arguing. About what? How does it end? A girl looks tired. What has caused this? Use simple pictures that can be interpreted in many ways. You are not trying to look into people's personalities. You are trying to get people to talk about common themes and patterns in their society.

A number of standardized picture tests have been used in psychology and psychological anthropology, such as the Thematic Apperception Test or the Rorschach Test (inkblot test). Psychologists use them for their original purpose: to look at personality. Anthropologists have used them to see if people produce common responses that might be typical of their culture. Using these outside the cultures for which they were designed can cause serious problems, and these problems are compounded if you are not experienced in the theory and practice of these tests. Do not try to use them.

GAMES

Every society has games, stories, riddles, proverbs, and songs. Can they be used to make the research process more familiar or more pleasant? Can they be adapted to get at issues more readily?

The oldest game in the world, which anthropologists call Mancala, is found in more than 200 versions in Africa, the Middle East, and southeast Asia. Whatever its local name, most readers will recognize it from the diagram below, a wooden board with rows of holes. The number of holes and rows varies from one place to another:



You can use the Mancala board and some stones or markers as a Likert scale (see chapter 9), in which people rate items (people, processes, plans, and so on) on a scale of six, with minus three being most negative and plus three being the most positive, or from one to six. You can also use it as in the Semantic Differential (see chapter 9 again): for example, the left side of the board can represent good, the right bad, and concepts such as state education can be ranked along the scale.

Obviously, as the board above has two rows, two concepts can be ranked or scaled. If no board is available, you can scoop holes in the ground.

You can create games yourself. For example, at a teachers' conference, you want to find out what teachers from different regions of the country think are the biggest obstacles and the most promising interventions in relation to girls' education. If they are familiar with board games, you can create one in a format similar to figure 16-5 in chapter 16. Invite the participants to assemble in teams by region or any other useful grouping. Ask them to list promising interventions for girls' education in their area, then rank and number them. Assign the highest number to the most promising and the lowest to the least promising. Do the same for obstacles, except give the biggest obstacle the highest negative number, and the smallest obstacle the lowest. Write each intervention and each obstacle on its own card, with its number, and distribute one in each space on the board game. The game can then be played like any board game, using dice or any other system that allows players to move markers toward a final winning destination, such as "More girls in school." As players' markers land on obstacles, they must move backwards on the board spaces by the number shown in the obstacle. A serious obstacle might send a player back eight spaces.

The aim of this, of course, is not playing the game, but rather getting people to prioritize interventions and obstacles, and to see how they differ from one team to another. It is important at the end of the exercise to discuss the reasons why each group chose and ranked their priorities as they did. This kind of game can be used by children as well as adults, in any place where the conventions of such play are familiar and are culturally acceptable

TRADITIONAL STORIES

The analysis of folklore crosses several disciplines, and researchers use it for a number of purposes, some quite sophisticated, such as attempts to study themes in folk stories as clues to the personality of a society (see, for example, Barnouw 1985). Here its purpose is much simpler: a device to get people to talk by asking

"What if...?" What if the sex of the main character is changed, for example? What if a character does something that is uncharacteristic for a person of that sex? Be careful not to offend people. Do not alter sacred literature, for example.

DRAWINGS

In many societies, drawing or modeling can be a way to get people, particularly children, to discuss their ideas. Asking children to draw a rich compound, a poor compound, a compound in which children go to school, a compound in which they do not go to school, and so on and to explain what they have drawn can give you insights that you have not obtained through other methods. You can say to a class, "Please draw a child being called to the front of the classroom to receive a prize," to see if the children draw boys or girls, and who draws them.

ROLE PLAY AND FIGURES

Sometimes you can ask people to act out scenes. You might ask them for some typical issues that arise in relation to children's schooling and act some of these out: for instance, a family has just discovered that their daughter was seen talking to an older man on the school grounds. Now what? Or the harvest was not good this year, and money is scarce. Not all the children can go to school. Or a girl child has just been born into a family. Neighbors are gathering to hear the news. How do they react? You can use what you learn from these little scenes to create questions that you can direct to the group or use in other interviews.

You can also provide figures to people, particularly children, and ask them to enact a scene. For example, a girl hears that she is to be taken out of school. She is talking to her mother and father. What happens?

Psychologists and anthropologists use many of these techniques to analyze people's behavior and to provide therapy. It is important to keep repeating that you are not interested in testing individuals, but thatyou are looking for cultural patterns. Do men make the decisions? Do boys get preference? Does the larger family group decide some things?

CONTENT ANALYSIS

Stories need not be traditional, of course. The anthropologist Kenneth Little analyzed the roles and situations presented in modern African novels for his book *African Women in Towns* (1973). You can do something similar with popular literature and other media, including magazines, newspaper features, children's books, films, and videos. What occupations, roles, behaviors, and activities are associated with men? With women? You can count these kinds of activities and behaviors.

Textbook analysis for gender sensitivity is another types of content analysis that can produce both quantitative and qualitative data. Extensive checklists for gender content analysis of textbooks are available (see, for example, Obura 1991). Some common items to look for are found in the checklist shown in box 13-1. All these items can be applied to textbook animals, mythical creatures, and historical figures, as well.

An analysis of English and social studies texts in one country using these criteria produced information such as[1]

> **Males are consistently associated with technology, teaching, medical and political leadership, religious observance, and a wide range of occupations in business/financial/community settings. They are also identified with building, repairing, inventing, and exploring. Males rescue people, heal people, tell stories, and are associated with power and magic. Males engage in energetic physical exercise and labor. They solve problems, are resourceful, clever, sly, decisive. They give orders and are presented as heroes, leaders, judges, and emancipators throughout the texts.**

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[1] The country is deliberately not mentioned here. The purpose is to show the kinds of results you can get.

Box 13-1. Gender Sensitivity Indicators: Criteria for Appraising Gender Sensitivity in Textbooks and Examination Questions

The following checklist is not exhaustive and is open to adaptation to suit the analysis of any text.

Summary indicators

- Frequency and nature/manner of appearance of characters by gender
- Named and unnamed characters, individualized or grouped
- Work/employment images
- Sociopolitical images—ownership, buying, investing, giving, sharing, receiving, etc.
- Family roles
- Psychological traits—courageous, docile, innovative, dynamic, simpleton, authoritative, etc.

Analysis strategies

- Breakdown of characters by gender and number and count frequency of mention
- Listing of number of females mentioned by name and those nameless
- Listing of gender—indicated common nouns and classification as female/male adult, female/male child
- Order of appearance by gender in terms of page of appearance and placement on page and sentence
- Listing, categorizing, and counting roles of characters identified by gender
- Determining centrality of characters by in-depth analysis of relationships and prominence patterns of presentation
- Counting pictures of female/male adults and children
- Determining role models for girls as compared with boys
- Noting method of presentation of characters by gender—order of presentation, autonomy/dependency, a corollary or complement, respective female/male roles in the home, etc.
- Awareness of language and the way traditionally neutral words are used, e.g. , man, people, traders, farmers, and how pronouns are used, e.g., the farmer and her cows.

Proposals for improving accuracy of gender roles including affirmative portrayal to counter/redress current imbalances

- Increase use of neutral pronouns
- Deliberate allocation of positive roles for women and girls and increased reference to girls and women with due regard to first appearance, order of presentation, and centrality of character
- Increase in the number of named female characters and in the use of feminine descriptions—headmistress, businesswomen, etc., as appropriate
- Deliberate care in presentation of relationships between characters—balancing the role of dependency, authority, and autonomy by gender
- Increased portrayal of women and girls in economic and political roles
- Deliberate increase of female role models, with particular reference to female participation and achievement in science and technology, agriculture, professions, and in leadership roles
- Greater emphasis on female intellectual and professional capacities
- Depiction of males in family-related capacities and increased depiction of sharing of domestic roles

Source: Sigurdsson and Schweitzer (1994).

> Females are consistently associated with cooking, cleaning, sweeping, washing, carrying goods and babies, fetching water, sewing, marketing, teaching, requiring medicine, and helping males to do various things. Females are also presented as listening to males, being frightened, inept with regard to technology, dropping/breaking/burning things, rarely as solving problems or being resourceful. They tend to be the rescued party rather than the rescuing party, are easily hoodwinked, and with the very odd exception, have no apparently powerful roles to play in the broader social environment.

Our Girls

We could ask the parents of our girls in X District about their attitudes toward girls' education (box 4-6). But maybe they have just gone through a sensitization program and give the "right" answers, not what they really think.

There may be no way to get at what they really think, but we might try creating some short stories about girls who went past Grade 6. Ask what happened. Did they get husbands? Did they forget the traditional ways?

Here's a warning. Do not use a technique just because it is there. Notice in box 4-6 that we want to say something about textbook content, especially in relation to gender. We could do a complete content analysis of the country's textbooks. But here is where your sense of perspective should emerge. Remember our main purpose is to find out why girls are leaving school at Grade 6 in X District.

Analyzing all the textbooks will take up all our time. See if someone else has done it, or spend a limited amount of time yourself, but that's it. (But don't pretend you did a comprehensive analysis.)

FURTHER READINGS TO HELP YOU

Barnouw, Victor. 1985. *Culture and Personality*, 4th ed. Homewood, Illinois: The Dorsey Press.

Cole, M., J. Gay, J.A. Glick, and D.W. Sharp. 1971. *The Cultural Context of Learning*. London: Methuen.

Cushner, Kenneth. 1990. "Cross-Cultural Psychology and the Formal Classroom." In Richard W. Brislin, ed., *Applied Cross-Cultural Psychology*. Newbury Park, California: Sage.

Lonner, Walter J., and John J. Berry. 1986. *Field Methods in Cross-Cultural Research*. Newbury Park, California: Sage.

Obura, A.P. 1991. *Changing Images: Portrayals of Girls and Women in Kenyan Textbooks*. Nairobi, Kenya: ACTS (African Center for Technology Issues) Press.

Van Maanen, John, ed. 1983. *Qualitative Methodology*. Newbury Park, California: Sage.

Webb, E.J., D.T. Campbell, D.R. Schwartz, and L. Sechrest. 1966. *Unobtrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.

What rapid assessment and participatory learning approaches are good for:

- Capitalizing on local knowledge to get a basic picture, develop and refine policy and practice, create action plans.

Examples:

- Developing a local plan to help parents and teachers to improve school girls' security
- Working out a system to help parents meet school fees
- Enhancing the curriculum through community input, to incorporate traditional values

Sample studies:

- Kane, Eileen, and Mary O'Reilly de Brun. 1993. "Bitter Seeds." Washington, D.C.: World Bank, Africa-Sahelian Department, Population and Human Resources Division. Draft.
- O'Reilly de Brun, Mary. 1994. "Tender Shoots." Washington, D.C.: World Bank. Draft.

14

Rapid Assessment and Participatory Learning Approaches

summary

***Rapid assessment approaches** grew out of the urgent practical needs of development practitioners, and out of new ways of thinking about development. They have been used in agricultural, health, and natural resource management research projects, among others, but rarely in education.*

*Two that hold great promise for studies of education are **rapid rural approach** (RRA) and **participatory learning and action** (PLA). They are used at the local level, but can provide useful information at all stages of policymaking, planning, and implementation.*

Participatory rural appraisal strategies help to get a more holistic picture and to avoid common biases, involve the participants as partners, and tie action to research.

> Decisionmakers need information that is relevant, timely, accurate and usable. In rural development, a great deal of information that is generated is, in various combinations, irrelevant, late, wrong and/or unusable anyway. It also often costs a lot to obtain, process, analyze and digest (Chambers 1981, p. 95).

Why is this the case? The techniques we have been discussing so far are designed to get good, useful information. What would cause an international development expert to make such a comment?

> The social anthropologist's fieldwork published ten years later… the extensive questionnaire survey with 30 pages of questions… which if asked are never coded, or if coded never punched, or if punched never processed, or if processed and printed out, never examined, or if examined, never analyzed and written up, or if analyzed, and written up, never read, or if read, never understood or remembered, or if understood or remembered, never actually used to change action (Chambers 1981, pp. 97–98).

Chambers calls this "long and dirty" research. Another inadequate source of information is "development tourism" or "quick and dirty" research, that is, sloppy research, carried out during hasty skirmishes to convenient, fairly comfortable locations.

By the 1970s, a number of facts about development and development-related research were becoming all too clear:

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- Economic inputs and technology transfer alone were not creating economic and social development. A more holistic approach was necessary. The environment, the economy, politics, and "human" factors such as social organization and culture are all interrelated and all have to be taken into account when working toward practical, meaningful change.
- Each of the partners in development has a unique perspective to contribute. The views of donors, national governments, development workers, technical experts, and researchers had always been recognized, but various project failures around the world were demonstrating that the participation and perspective of local people is as essential as any other "expert" contribution.
- Many social scientists who could help to provide a holistic dimension and give insights into the often forgotten human factors were still carrying out research in ways that met the requirements of universities and professional journals rather than the immediate needs and constraints of development practitioners.

As a result of all these problems, new approaches have emerged based on new ways of looking at "development," at how and by whom information is obtained, at how to avoid bias, at the value of local knowledge, and at the rights of local participants in development. They began in rural agricultural research—farming systems research and farming systems analysis—and evolved to cover a variety of other development research needs, adding new techniques, strategies, and philosophical insights as they went.

Some of the approaches that have emerged are **rapid rural appraisal** (RRA); **participatory rural appraisal** (PRA); **participatory learning methods** (PALM); **local environment analysis and the assessment of rural needs** (LEARN); the **sondeo** approach; and most recently **particpatory learning and action** (PLA).

RAPID RURAL APPRAISAL AND PARTICIPATORY LEARNING AND ACTION

Two approaches, in particular, have attracted a number of supporters, have acquired a respected track record, and have accumulated a growing body of literature. The first, developed in the late 1970s, is rapid rural appraisal, an overly modest name, because the approach is not restricted to rural settings or problems, its uses extend beyond project appraisal, and although its fieldwork usually involves anything from four days to three weeks, preliminary work and final analysis may take additional weeks or months.

The second is a mid-1980s development within RRA called participatory rural appraisal, more recently renamed participatory learning and action. (If you are looking for pre-1995 readings on PLA, note that you will find them described as PRA.) PLA draws on RRA, participatory and action research traditions, and anthropology. As will become clearer later, both RRA and PLA are grounded in all three philosophical orientations described in chapter 2: postpositivism, phenomenology, and critical theory.

Despite their cumbersome titles, the literature on RRA and PLA is cheerful, easy to read, and welcoming to the newcomer. Even more refreshing is that participants, researchers, and local people alike often find the research process not only useful, but also enjoyable.

RRA and PLA are similar in their attempts to deal with some of the problems we have mentioned, and many of the approaches and techniques are the same. A major difference is that like most conventional research methods, RRA is **extractive**: "we," as experts, take information from "them." PLA, by contrast, is more **participatory**: outsiders act as facilitators for local people, who join in determining the agenda, issues, and concerns and in collecting the material, interpreting it, and acting on it. A local person might be part of the facilitating team, or the entire exercise might be initiated and carried out by local people once they have learned the process. PLA places a value not only on local knowledge, but on local analytical abilities. The most difficult part of PLA is not helping people to learn how to study themselves, but helping researchers and experts to unlearn the attitudes, behaviors, and roles of command and control. Rather than extracting information from local people, experts are encouraged to become their partners in learning.

RRA and PLA are adaptive learning strategies rather than sets of standard techniques. They are based largely, but not entirely, on qualitative techniques, such as participant observation, interviews, social and physical mapping and diagramming, case studies, and various emic techniques, as well as on brief surveys and innovative approaches to sampling.

RRA and PLA involve

- Taking a **holistic, multidisciplinary approach**, that is, studying the entire context of a situation using insights from various fields.
- Applying a "**reversal of learning**," in which researchers recognize that local people are their teachers, not their subjects. Local expertise is a valuable resource in planning projects that are sound and sustainable.
- Taking active steps to **avoid bias** by including in your study the less powerful; the invisible; the voiceless; and the socially, economically, and geographically marginal. Many researchers find that consulting prominent, well-established, healthy, centrally-located men in middle or later life is more comfortable. Such people are accustomed to being consulted, expect to be, and are more likely to have the power to smooth your path (or obstruct it). But most people in the community do not fall into these categories, and *their* perspectives are essential too.
- Using **triangulation**, that is, employing multiple techniques, methods, researchers, and perspectives, including those of local people, to address the same issue or problem.
- Adopting an **iterative approach**, a concept borrowed from systems theory, in which a system (in this case your study) repetitively feeds information from the environment back into itself to allow you to use the insights gained to direct or redirect your research.
- **Seeking diversity** by deliberately looking for variations, exceptions, and contradictions to the pattern you have found. Most poor families send only a few of their children to school, yet one particular family sends them all. How does it do so and why? These girls are taking carpentry in school despite a lot of peer pressure and discouragement from teachers. Why?
- Recognizing the principles of **optimal ignorance**, that is, knowing what is not worth knowing, and of **proportionate accuracy** or **appropriate imprecision**, which is not being more accurate or precise than necessary (Chambers 1992, p. 14). If you do not need to know down to the last ounce how much paper the local gender sensitization campaign has used, why be so precise? As the anthropologist Clifford Geertz (1983) has said: "It's not necessary to know everything to know something."
- Avoiding the kinds of **antipoverty biases** that have characterized much research done from the outsider's viewpoint, such as the "tarmac bias" (studies done in more accessible places), the seasonal bias (studies done in the more comfortable seasons), the "garland bias" (overwhelming people with your importance), and the elite bias discussed in chapter 7 (Chambers 1983, pp. 13–23).
- Using a wide range of techniques (see box 14-1), some borrowed from existing disciplines and adapted and some developed by practitioners, whose intent is to obtain enough understanding of local knowledge, perspectives, viewpoints on technical processes, resource management, social groupings, institutions, life cycles, sociocultural patterns, and historical and seasonal changes to enable the practitioner to investigate topics; explore problems; and appraise, plan, monitor, or evaluate projects.

Each project is different. Researchers choose from among the choices presented in box 15-1 (and some others). Many of these techniques are carried on outside, in group settings, and where appropriate, diagrammed on the ground by local people.

How do you know if a project is taking an RRA approach or a PLA approach? Sometimes, it is quite obvious: it is RRA when a team of technical experts, composed largely of outsiders, tries to gain relatively rapid insights from local knowledge to develop a project or adapt an existing one to meet local needs. They do the research and analysis. It is PLA if local people, facilitated by insiders or outsiders experienced in PLA, determine the issues, get the information, analyze it, and act on it.

Box 14-1. Some RRA and PLA Techniques

- Using **semistructured interviews**, which allow local and individual viewpoints to emerge more readily than formal structured interviews
- Identifying and interviewing **key informants**
- **Observing**
- Working with groups through **mapping and modeling**
- Getting important dimensions and categorizations within people's lives and environments through **taxonomies, scoring and ranking techniques**, and **Venn diagrams**
- Studying change by **analyzing trends** of historical, seasonal, and life cycle patterns through **case histories, seasonal calendars, maps**, and **photographs**
- Developing **indicators and proxy indicators** to ascertain patterns and associations
- Drawing up **matrices** to see relationships between priorities and problems and between possible opportunities and obstacles
- Carrying out **preference rankings** to investigate decision-making
- Using linkage and causal **diagramming charts** and **flow charts** to show consequences of activities and processes
- Holding **community workshops** to discuss findings and get feedback and **analytical workshops** to analyze the materials collected
- Using **surveys** and **questionnaires** that are specific, short, and usually used later in the exercise

However, the distinctions are not always that simple. Just as a piece of research can contain both etic and emic elements (see chapter 4), a project can contain both RRA and PLA components. For example, the agenda can be determined by an outside organization. Perhaps you want to take a participatory approach. Your department is interested in funding programs to advance girls' education, not in providing irrigation systems, but local people, if the agenda were left to them, would rank irrigation as their first problem. By choosing education, you have determined the focus of the research. If you are lucky enough to be working for an organization that is sufficiently flexible to realize that tackling irrigation first may improve farming, thereby reducing the need for girls' labor and freeing them for schooling, your approach can be participatory from beginning to end. However, most organizations are not that flexible, which means you are starting out with a "tied" agenda and resources. Even so, having determined the agenda, you can then try to make the rest of the process as participatory as possible.

Of course, simply involving local people does not necessarily mean that an approach is participatory. *You* may be a local person in the context of a particular project. Perhaps you are the local teacher. However, unless everyone else who is concerned with the issue participates in the research and analysis, your approach will be extractive.

USES OF RRA AND PLA

RRA and PLA can be used in organizations, institutions, and a wide variety of other settings, both rural and urban (box 14-2). Both RRA and PLA have been used by people in local communities and by economists, agronomists, biologists, social scientists, educators, health workers, and engineers, among others, working in government departments and bureaus, national and international agencies, and research organizations.

Box 14-2. What RRA And PLA Are Good For and Not Good For

RRA and PLA are good for

- Providing basic information in situations where little is known
- Identifying and assessing problems
- Appraising, designing, implementing, monitoring, and evaluating programs and projects
- Getting a better picture of needs and organizations' ability to meet them
- Developing and transferring appropriate technologies
- Appraising emergencies
- Planning projects that are more relevant, restructuring administrations, assisting in decisionmaking and policy formation
- Generating hypotheses, ruling out inappropriate ones
- Providing guidelines for survey designs and assessing the applicability of their results to other places
- Fleshing-out, complementing, interpreting, or giving depth and context to information obtained through other methods

RRA and PLA are not very useful for

- Working in situations in which the problem is not usefully addressed at the local or group level, for example, in situations where national policy change is required, or where large-scale structural reorganization is necessary (but even then, local views may help to shape the change)
- Working on projects or in situations in which there is little ability to act flexibly or change direction if necessary
- Working in situations where there is little or no possibility of implementing the community's plans

The functions listed in box 14-2 can be categorized as exploratory RRAs (to determine problems or opportunities), topical RRAs (to investigate one aspect or problem), monitoring and evaluation RRAs, (to track ongoing developments and to assess completed projects), conflict resolution RRAs (to resolve conflicts between groups), and participatory RRAs, which are the subject of much of this chapter. These have been applied to farming, agroforestry, irrigation, health, nutrition, soil and water conservation, forestry, natural resource management, water supply and sanitation, organizational analysis, policy planning, urban development, and gender issues. With few exceptions they have not been used in studies of education, although a report by Kane and O'Reilly de Brun (1993) showed that many of the techniques are easily adapted, and that new ones specifically created for educational research will undoubtedly emerge.

By the early 1990s, RRA and PLA had been used in many countries, both North and South. The Institute of Development Studies of the University of Sussex in England has been a major force in developing theory and methods.

RRA and PLA have spread quickly, from early projects in India, Kenya, and Nepal to other parts of Africa and Asia and to Latin America. A number of countries are holding training workshops in PLA for governmental and nongovernmental agencies, and some major international organizations now support and promote their use.

The International Institute for Environment and Development publishes much of the material on RRA and PLA, including *PLA Notes* (available from *PLA Notes*, 3 Endsleigh Street, London WC1H 0DD, England), formerly *RRA Notes*, which provide examples of applications, lists of free materials, contacts for field learning experiences, and manuals for a variety of techniques. For information on PLA in particular, see *RRA Notes* number 13 and *PLA Notes* number 22. Chambers (1994 a, b, c) provides the most comprehensive account of the history and practice of PRA/PLA and of some of the theoretical issues and challenges facing it.

COMPARISONS WITH CONVENTIONAL METHODS

People using RRA and PLA have to function in the positivistic atmosphere of international aid agencies, where the basic outline of the research problem is determined, and where hard data are demanded. So practitioners frequently compare the accuracy, validity, and relative precision of their findings with those obtained from traditional questionnaires. There have been poor RRAs and PLAs (see Chambers 1992, p. 2) just as there have been poor surveys (see, for example, Stone and Campbell 1984). However, comparisons between the results of both approaches have shown comparable degrees of accuracy. For example, Chambers (1991, pp. 22–24; 1994b, pp. 1257–61) cites a number of studies in which RRA or PLA approaches were more reliable and valid or tapped an important dimension of reality that conventional methods missed (see box 14-3).

The following section shows the stages in an RRA project. Later we look at a project that uses a more participatory process. Notice how in RRA you are taking a positivistic approach (see chapter 2). You have decided that local knowledge is important, but it is you who is determining what is to be collected, how, and so on.

STAGES IN AN RRA PROJECT

The first thing to consider is who initiates a project? Sometimes the local community asks a team to come in and work with them. Alternatively, the initiative may come from you or your office, department, or organization. You may need local information and think that an RRA approach is an equitable and reliable way to get it. Then you begin.

Preliminaries

A research plan is developed, following the steps in box 14-4. Some projects begin with basic guideline questions, but others have only a general list of guiding points. Flexibility is the keynote here: no matter how carefully you prepare the plan, you will have to amend it as the situation develops. This process is similar to the research outline approach, but the stages of choosing the main topics and subtopics are not as comprehensive. You want a general idea, but the details may be altered as you move through the research.

Box 14-3. A Comparison of Survey and PLA Results

A survey with a pretested structured schedule was administered by five experienced investigators in South India. Data were collected from 412 households residing in three clusters on

- Type of house (type of roof, wall, floor, number of rooms)
- Caste
- Education
- Occupation of each member
- Ownership of land, trees, assets
- Number of dresses per person
- Yearly income.

A composite index was calculated for each household. Households were then assigned to X (poor) (score 3–5), Y (middle) (score 6–7), or Z (rich) (score 8–9). This was the professionals' classification, as determined by professionals with a conventional method.

A community classification was conducted in each of the three clusters separately by a group of four knowledgeable women and a group of four knowledgeable men. Some groups were instructed on the characteristics/criteria of each economic group, and others were given freedom to decide their own criteria. However, in making the ranking, all groups went beyond the original professional criteria and weighed a wider range of considerations. These included

- Type of land ownership
- Type of livestock ownership
- Landless but with a job
- Assets, including whether just a gift from relations
- Professional job—whether permanent or temporary, and the income
- Employment
- Fixed deposits
- Money lending—large or small amount, regularly or rarely
- Debts—type of debt, amount, effect of it on the family, repaying capacity
- Number of members in the house
- Bad habits—drinking, smoking, adversely affecting the household
- Rights to house—own, rented, belonging to relations, without land rights
- Children's education—capacity to give children education
- Father a coolie but son a white collar job
- Son in the military, no help from him, rest doing coolie work.

Each household, represented by a card, was allocated to one of three economic groups. The groups gave reasons for their classifications of each household. The outcome was the community classification.

The professional and community classifications were compared. In the largest village cluster, discrepancies were investigated by teams in detail, visiting houses, having extended conversations with members of the family and others, and making direct observations of a sort not possible with either the questionnaire or the wealth ranking.

The researchers concluded that the professionals, using the questionnaire method and with their fixed indicators, were 57 percent accurate in identifying the economic levels of the households, whereas the community members, using wealth ranking, were 97 percent accurate.

The formal survey of 412 households took 680 person-hours of staff time, and the wealth ranking of 421 houses took 144 person-hours.

Source: RUHSA (1993).

Box 14-4. Steps in Designing an RRA Research Plan

1. Clarify goals and objectives of the study
   Who needs the information?
   What are we trying to find out?
   How will the results be used?
   What is the scope and depth of information needed?
   What kinds of information do we need?
   What degree of accuracy/precision is required from the data?
   How will the information be collected?
   Who will collect the information?
   How will community members participate?
   Who can or should participate?
2. Choose main topics
3. Prepare a list of subtopics, indicators, and key questions
4. Identify sources of information for each subtopic
5. Develop strategy for gathering and analyzing information
6. Adapt/design research tools

Table 14-1 shows part of a research plan worked out. You can see that it is similar to the research design approach we used in chapter 4. You might use this kind of plan as a reminder of points and methods, but keeping an open mind about the topics, the tools, and the people to be involved is essential. Otherwise, you are losing one of the advantages of these approaches, which is their flexibility.

Table 14-1. Part of an RRA Research Plan

Goal: To improve understanding of the social and economic roles of women in Gaza

		Techniques					
Topic	*Subtopics*	*SSIs with women*	*SSIs with key informants*	*SSIs with groups*	*Direct observation*	*Secondary sources*[a]	*Diagrams*
Livelihood	• women's work opportunities	x	x			x	
	• women's activities	x			x		
	• savings & assets	x			x		
	• inheritance	x					
	• income	x					
	• household spending	x		x			
	• home production	x			x		
	• household duties (daily routine)	x					x
	• family size & dependents	x					
	• division of labor	x					

SSIs Semistructured interviews.

a. Include books, reports, and statistics.

Source: Theis and Grady (1991, p. 128).

To get the benefit of multiple insights on problems and issues, you should select an experienced multidisciplinary team of at least two people and usually less than ten, including outsiders and insiders (or local people) of both sexes. Next you need to consult knowledgeable people and examine existing studies and materials to see what is already known and what research might be most useful. Finally, the team or a member may make a preliminary visit to the study site(s).

Field Research

Fieldwork lasts from four days to three weeks. As information is collected and fed back into the system, the direction and context of the research is changed and refined as necessary, an example of the iterative approach. The team will need to hold frequent meetings, (perhaps once daily for the entire team and twice daily for subteams) to share material and insights, to identify major patterns and relationships, to explore variation and diversity, and to continue to amend the approach as awareness grows. To do this, each team member should take notes during each interview, if possible.

Sometimes, in a strategy called the **sondeo** approach, the team breaks up into research pairs. Their results are discussed in group sessions, and the next day the pair is split and each is then joined by a different researcher from another specialty. An educator working with an economist one day might be paired with a sociologist the next to get the most benefit from looking at the situation from different perspectives and to reduce bias. Box 14-5 shows how to analyze your information.

Box 14-5. Guidelines for Analyzing PRA Findings

- Analysis is a continuous process of reviewing the information as it is collected, classifying it, formulating additional questions, verifying information, and drawing conclusions. Analysis is the process of making sense of the collected information. It should not be left until all the data have been collected.
- Prepare a list of key issues and arrange the findings according to this list. Rearrange, break up, and reassemble pieces of data. Sort and sift through information and look for patterns, differences, variations, and contradictions. Weigh the relative importance of the information. Be self-critical.
- Create a series of questions based on the research topic (including new questions that may have come up during the fieldwork) and try to answer them with the help of the collected information.
- Discuss each subtopic in turn, summarize the results, and draw conclusions based on the information gathered during the fieldwork.
- Use diagrams, matrices, ranking methods, and other analytical tools.
- For further clarification, tabulate the information. Tabulating pulls out key information from interviews and observations, and allows comparison of differences between individuals. Tabulating also helps the team to avoid relying on general impressions rather than facts.
- Check findings and conclusions by presenting them to key informants or to a group of community members.
- Be self-critical.
- Findings have to be consistent and must not contradict each other. If the findings contradict the secondary sources or other sources you must be able to explain why. Your findings have to be believable.

Source: Theis and Brady (1991, p. 139).

As the research comes to a close, if the purpose of the study is to recommend options, the team and local people may meet at workshops to develop the most promising alternatives or solutions to problems that have been identified. The local people might rank the options and decide how to implement them.

Completion of the Study

Completing the study may involve return visits for follow-up, consolidation, and discussion of the materials collected. The outcome may be a plan, a project, or a publication. All participants in the process are encouraged to share information and experiences with other researchers, whether they be facilitator experts or local people in other areas.

An important feature of the RRA approach is to embrace error and learn from it. A good RRA team will welcome criticism from participants, analyze limitations and failures, and pass their insights on; all part of the progressive learning approach. Scoones and McCracken's (1989) study is a good illustration of how this process is carried out.

STAGES IN A PLA PROJECT

Often, a group or community initiates the process. It may be a village, a parent-teacher group in a town, residents of a section of a city, or any group that shares a common interest or problem. We will call this group "the community" for convenience here. People who have participated in or heard about PLA may want to try it. Once they have, they can usually continue to apply the process to new problems or situations as they arise. Many organizations are now using participatory approaches, and may decide that a PLA process will be helpful.

Preliminaries

First, the focus of the project has to be clarified. In PLA the community, working with or without outside facilitators depending on its experience, decides what the issues are, what it needs to know, how it will find out, and from whom. Facilitators usually bring special expertise about the problem or interest that concerns the community, as well as experience with the PLA process. However, not only can the community work on its own once it is familiar with the process, but it can train others, such as people in neighboring communities. Chambers (1994b, p. 1256) even mentions an instance in which villagers trained by a major organization later wrote to say they are going to carry out a PLA, but that "you do not need to come."

The Research

Unlike RRA, the emphasis in PLA is not on "rapid"; "relaxed" is a better approach. Because PLA is a flexible, participatory process, it takes as long as it takes. Where facilitators are involved, their task is to share their experience of PRA, rather than to run the show. This is probably the most difficult challenge facing the facilitator, but the aim is to empower local people to carry out the process so that they do the work and "own" the results. This requires "handing over the stick" (or the pen or chalk) so that the people concerned do the research, rather than the facilitator(s).

In PLA, the outcome is the development of sustainable local action and institutions, so once people identify and agree on their problems, they must assess various solutions. To do this, they may require input from people with special expertise or control of resources. For example, would the ministry of education pay a local woman to act as a chaperon for girls in classes taught by male teachers? Or how much would it cost to provide enough school furniture to accommodate all the children?

Completion of the Process

Then people have to develop appropriate action plans and procedures for carrying them out and monitoring them. The process continues for as long as necessary.

A SAMPLE PLA PROJECT

Now let us see how these principles and procedures might be used in a real project. Let us assume that you are a concerned outsider or a local leader who wants to identify and address local problems of girls' education.

In this particular project, the community, aided by a facilitator, is going to

- Identify local needs and prioritize them
- Identify possible opportunities and options for meeting those needs
- Get any necessary technical advice on inputs and costs of various options to meet each need
- Select the best option or options
- Identify possible internal and external resources
- Help the community to assign responsibilities and tasks
- Set target dates or estimated times for achieving aims.

Remember that this is a new field that emphasizes inventiveness, responsiveness, self-criticism, and learning from mistakes. The procedures listed are not hard and fast guidelines, except as concerns the researcher's ethical responsibilities to the other participants.

Carrying Out the Preliminary Work

For this exercise, we need at least one person who is experienced in PLA techniques. It is helpful if there are others who have participated in a training course or project or worked through a good training manual, such as one of those listed at the end of this chapter. Most manuals still focus on agriculture, natural resource management, or health, so you need to practice the techniques and adapt them to the study of educational problems. Remember, the field is evolving rapidly, and other researchers will welcome useful new methods that you might design.

For the rest of this exercise, we will be referring to "the team." This team is simply the facilitators who help to move the process forward. It can consist entirely of local people or a mix of insiders and outsiders. It should include men and women, older and younger people, and may also require people of particular language, ethnic, or religious groups. In our study, it will be important to have some young women who will be able to engage the girls of the community, who may not be accustomed to being consulted, to participate in the discussion. If we are hoping to identify and assess various options for solving a problem, we may require technical experts, either on the team or readily available to us, who can help analyze the various ways to provide the options, the resources required and their costs, and possible sources of help.

The team's size depends on the skills required and the scope of the work. In our project, we are trying to accomplish several things, just as you probably will be doing in your first PLA project. We are facilitating the community in an analysis of its education problems. We are also trying to draw upon some external expertise, where necessary, to get costs and other information about some of the options that the community identifies. Finally, we are sharing PLA methods with it for future use. The next time this process is carried out in the community, we outsiders probably won't be there at all, but in the current project, we have six people, including the local headmistress and the assistant chief.

A preliminary visit to the site can be very helpful if there are outsiders on the team. It is also important to explain the purpose of the exercise and the basic approach to all local people who would expect to be informed. You might prepare a short presentation that gives a basic explanation of the philosophy behind the project and one or two of the techniques. At this initial meeting, stress that the success of the work will depend upon involving everyone concerned, and encourage the people you are meeting with to invite the community to participate. During this and every other phase of the research, remember to use proper local protocol. Any outsiders on the team can also use this occasion to learn about the community's composition in terms of ethnic, religious, language, and economic groups; what development projects are going on; what has worked and what has not worked and why; what agencies and groups were involved; and so on.

Because this particular project is intended not only to identify problems, but also to address them, the community will have to find ways to implement plans and monitor projects that emerge as a result of the research. If no appropriate local association is available, the community may establish a new committee to follow up the work on completion of the research. Such a committee should include both men and women.

It may be helpful to find relevant published and unpublished material that will put the community and the problem in context, such as census data, government and donor agency project reports, school records, and information about university studies. The aim is to get a picture of the community and to avoid repeating work that others might have done, not to write a book or a thesis. Delaying other work while collecting these kinds of data is easy. You always have one more "essential" figure to track down, but don't be tempted.

Doing the Field Research

During the field research we will use what we think will be the most useful research tools from the "basket" of PRA techniques. Ones that worked on a previous project will not necessarily work on this one, and some that we plan to use will have to be dropped or adapted during the course of the work. Because PLA is a flexible process rather than a "cookbook" approach, the mix used has to be tailored to the situation, the aims of the research, and the local context. For our example, we will be using group discussions, pie charts, matrices, mapping, card sorts, well-being rankings, interviews, observations, seasonal diagrams, Venn diagrams, questionnaires, pairwise rankings, resource access ranking, and options assessment charts. All these will be explained as we go along. We will make some mistakes, and at least one of these techniques will turn out to be more trouble than it is worth in this particular project.

In PLA, many of the techniques are carried out in the open air, on the ground. When diagrams are required, they will be drawn with a stick. When materials, such as symbols, are needed, they will be taken from whatever happens to be handy, such as leaves and seeds. This way, everyone sees what is being done, and people recognize that research and analysis can be done with familiar, easily available resources. Also, people who cannot read and write can participate.

If the work is done inside, people will need materials such as large paper, things to write with, and a blackboard or a flip chart, all of which have disadvantages: it is not as easy for people to wander by and contribute, it may intimidate nonliterate people, shy people may have to approach the front of a room unless you take great care to set up a circle, you may not have as much space, and you will probably have to bring the materials with you.

The outside setting, however, is not always perfect: the diagrams have to be protected while being made and must later be transferred to paper, and you and the diagrams may need some kind of shelter during wet or inclement weather.

We will start with a group discussion,using an historical profile, pie charts drawn on the ground, and matrices drawn on the ground.

To start the exercise, the PLA team may meet a group of local people (sometimes all the people in a small village) at a time when most of the people in the community are free. You need to have an understanding of the daily routine so that you can fit your research activities into it and not interrupt people's work or important events. Events in the community may traditionally begin with a religious ceremony or some words from a community leader. Find out if this is the case and do what is appropriate.

If women, young people, poorer people, or members of particular social or ethnic groups do not usually speak, or do not speak candidly in the presence of others, all the processes should be repeated with several groups.

HISTORICAL PROFILE

To begin, people might be encouraged to tell about the place, its history, achievements, and problems. Sometimes this kind of historical profile (box 14-6) is a good way to get the conversation going, because people are expert on their own history. Often, outside researchers are surprised at the richness of oral tradition and memory, particularly among nonliterate peoples. Many village histories go back several hundred years.

Box 14-6. Historical Profile

1940	Village founded by Foday Dansa, alkalo (chief) and imam. Thirty settlers accompanied him from the next district and established twelve households. Alhaji Foday Dansa wrote many books and attracted many scholars.
1947	Old well built.
1951	Foday Dansa named his eldest son, Mustafa Dansa, as the second alkalo, and his younger brother, Malick, as the second imam.
1965	Mustafa Dansa died. Succeeded by Sarje Dansa as alkalo.
1970	Madarassa school built.
1972	Malick Dansa died. Succeeded as imam by Omar Dansa.
1982	New well built.
1985	Primary school built. Headmaster Musa Bakara comes from Talinding.
1989	New fencing program established.
1990	Two rooms added to school through help of Action Aid.
1992	Headmaster transferred. Headmistress Mbengeh Sowe arrives.
1993	President visits village.
1994	Village asks Ministry of Education for middle school.

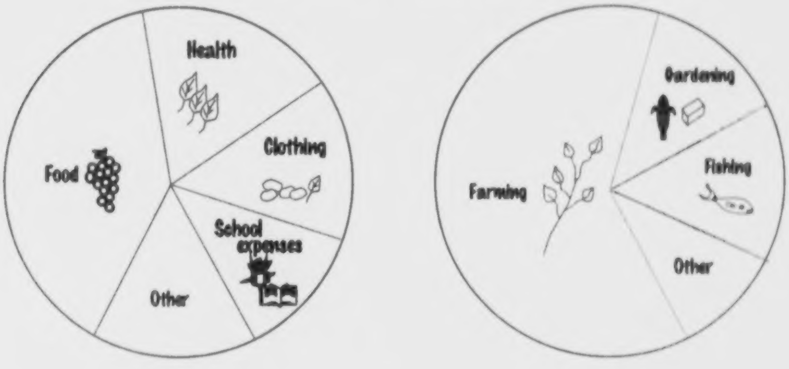
PIE CHART

As you are reading about the rest of the techniques in this chapter, notice that almost all of them are visual modes for interviewing, recording, and analyzing all in one. Basically, they are a form of interviewing, whether done by a facilitator or by people in the group.

While people are discussing current conditions in the community, a pie chart (sometimes called a chapati diagram) may help to give you an idea of relative proportions of community sources of income and expenditure, ethnic and language composition, or any other distribution that you might need (figure 14-1).

Because an essential part of PLA is "handing over the stick," local people should draw the pie charts and any other figures. If they are reluctant to start, draw a circle and ask how much of it should be given to each of the things people are discussing. They may not be familiar with the idea of dividing a circle or may prefer another method. On a Gambian project, villagers decided to state these proportions in percentages, which is the way information is presented to them over the radio (Kane and O'Reilly de Brun 1993).

Figure 14-1. Examples of Pie Charts



Men's expenses

Men's income

An alternative to the pie chart is a pile of seeds, sometimes called "the hundred seeds" technique. In this, the participants divide a pile of seeds, which, if they number 100, make percentage calculations easy. It also allows people to adjust the proportions more easily, and more people can take part.

People may argue about the relative proportions within the pie chart. If the differences seem important, use other methods to check them during the course of the research, and try to find out *why* people have different perceptions.

COMMUNITY PROBLEMS

Next, people discuss the problems in their community. Although this project is related to education, knowing where education fits into the general range of problems is helpful. People assign a symbol to each problem, say a battery to represent the need for a generator, a book for the refurbishment of the school, a match box or whatever else comes to hand for the broken milling machine. Use whatever is around, provided that using the object in this way is locally acceptable (in some places, food items, for example, cannot be put on the ground). Using symbols rather than words allows nonliterate people to participate, and in any case, writing on the ground is difficult. As the discussion proceeds, people rank the items in terms of importance to get some idea of the size of the overall problem and the relative importance of individual problems. This can be done by moving the objects around or assigning stones of different sizes to them.

EDUCATION MATRIX

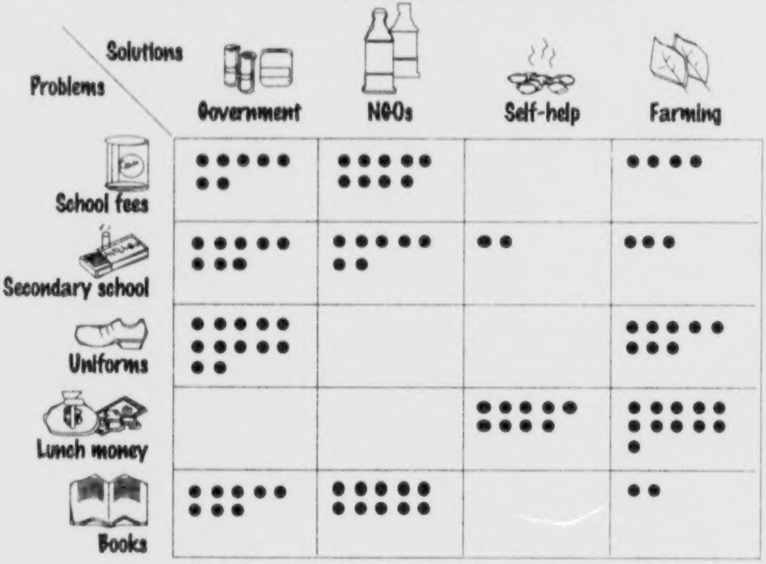
Then we move on to education. What are the problems? School fees? The need for a secondary school? The cost of uniforms? Distance from a school? Symbols are assigned once again, and because resources are always limited, people rank them. This can be done in one of several ways. If there is general agreement, people just place the symbols on the ground on what will be the vertical axis of the matrix. They might use stones again to show the relative size of the problem. (They can also use pairwise ranking, discussed later in the chapter, if the order of importance is not that clear). If the community has split up separately into men's and women's groups or into groups whose concerns are different, it is likely that the identification of problems, their rankings, and possible solutions probably won't match. This is important—and we will return to it later.

What do people think are some possible solutions? Making their own school furniture? Improving their marketing facilities so they can pay for uniforms? Setting up a credit union? Approaching a nongovernmental organization (NGO)? Asking the ministry of education to delay payment of school fees until after the harvest?

People then relate the problems and possible solutions in a matrix diagram. The problem symbols are already placed vertically on the ground. Use this as one side of the diagram. Put the solution symbols horizontally across the top (figure 14-2).

The group takes a set number, say twenty, of seeds, stones, beads, or whatever is handy for each problem. They discuss how to distribute them: for example, if self-help is a major solution to lack of school furniture, they might agree to put twelve stones beside that problem in the self-help box. If a petition to the ministry of education seems feasible, they might put five in that box. Figure 14-2 shows a matrix as worked out by a village group.

Figure 14-2. Example of an Education Matrix



Problems \ Solutions	Government	NGOs	Self-help	Farming
School fees	●●●●● ●●	●●●●● ●●●●		●●●●
Secondary school	●●●●● ●●●	●●●●● ●●	●●	●●●
Uniforms	●●●●● ●●●●● ●●			●●●●● ●●●
Lunch money			●●●●● ●●●●	●●●●● ●●●●● ●
Books	●●●●● ●●●	●●●●● ●●●●●		●●

MAPPING

Many PLAs that are looking at agricultural or natural resource problems begin with local people drawing a map of the community on the ground. This is an attractive idea. Most people are fascinated by maps of their own area, so it often draws many people in. It also starts local people out on the right foot: they are definitely more expert at preparing their map than anyone else, and it sets a tone for discussion and debate: people argue about such things as the scale, where things are, what has been left out. Maps are also useful for nonagricultural projects, and in our project, we will use one to look at who is going to school and who is not. We can show educational participation by household, compound, or whatever unit makes most sense.

Why don't we just use school records? Current records may only tell who is in school, and perhaps who has left. Children who left a few years ago will have to be identified through older school records, and those who never attended at all or are in another school, such as a Koranic school, will not appear at all. Sometimes, of course, an exhaustive analysis of school records over the years can be helpful if they have been kept properly and in the same way by everyone who recorded information. For our purposes, however, the map will tell us much of what we want to know.

To start the map, someone draws an important feature of the village—a river, a road, the school—and relates the rest of the drawing to that feature. If people are reluctant to start, you might draw a line indicating the road entering the village and the spot where you are now, and ask people if this is correct. Invite them to put in other major features, marking them with stones, leaves, or twigs.

The map should be large. Eventually it will show information about every household or compound. If it is too small, people will have to start again, wasting everyone's time. Also, the map may attract a crowd, and people should be able to see it.

After the major features are in (and some will usually be forgotten, which is another reason for leaving a lot of space to insert them as other people pass by and comment), people start inserting the households, compounds, or whatever is the locally appropriate unit.[1] We will use the word household here.

Begin with one household—the nearest, or the chief's, that of a volunteer, or whatever seems best—and using different kinds or colors of symbols (for our project, four different kinds of beads or seeds) ask how many school-aged girls are in the household (the age will depend on the country and the school system). How many of them are going to school? People mark them by putting down the correct number of, say, red beads. How many are not? Mark them with blue beads. Repeat the process for boys using two new colors. If you want to show other things, such as whether the parents are literate, you will need more symbols, one for literate father, one for nonliterate father, one for nonliterate mother, and so on. Depending on your study, you may discover other things that are important to record (these are the variables we discussed in chapter 4).

Continue until all households are on the map. The map in figure 14-3 shows the beginning of this process. We do not have enough space here to insert all the boys and girls, but beads or seeds would be placed near their household.

While the map is being made, someone should be copying it on to paper and placing a number on each household. This person should get the name of each household head, and from the map, the number of children, boys and girls, going and not going to school (figure 14-4).

Seeing a map like the one shown in figure 14-3 helps everyone to think about school participation. People passing by may add information. In a study by Kane and O'Reilly de Brun (1993) in The Gambia, a little boy wandering past said, "But where's the girl in that house? She's not on the map?" The men making the map said, "Of course she's not. She's fourteen and about to get married." Because the map was very detailed and appeared to be exhaustive, this was the first warning the researchers had of the possibility of "invisible" girls. Eventually they found that villagers in this and many other places tended to classify about 25 percent of their girls as not being of school age because they were married, about to be married, or had never attended school.

Besides serving as a kind of education census, the map has other functions. It will be used as the starting point for other research activities, and it can be checked, and be used as a check itself, against information gathered in other ways. For example, the map can be used as the basis of the next two activities: card sorts and interviews.

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[1] This is a good example of the value and problems of using categories that are meaningful locally versus "official" ones (remember the issues discussed under "what do I see these people doing?" versus "what do these people see themselves doing?" in chapter 4). On this map, you are showing local people's ideas about what constitutes a useful unit for looking at education. (If you are looking at a subject such as food sharing or rights to demand labor, the unit could, of course, be different.) But whatever kind of unit local people choose, it may be different from that used by officials such as the census takers. If it is, you will not be able to compare or check your findings with the census findings on education. You are choosing to sacrifice that for the sake of getting locally meaningful categories. At times, however, the value of making a comparison with official figures may be more important than using local categories.

Figure 14-3. Example of a Partially Completed Mapping Exercise

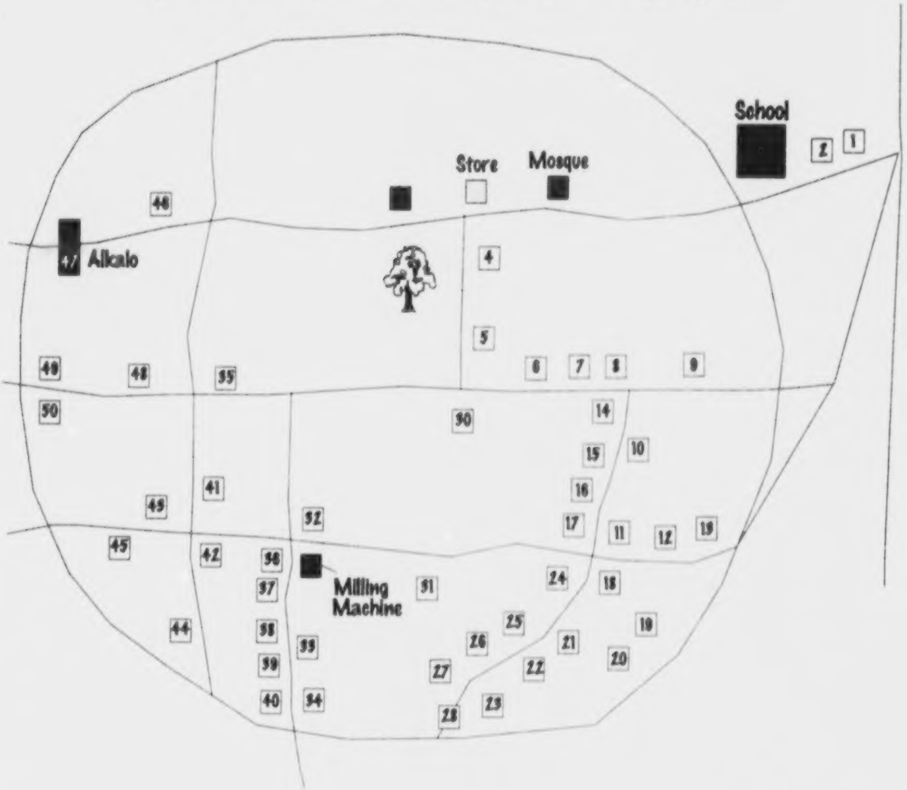
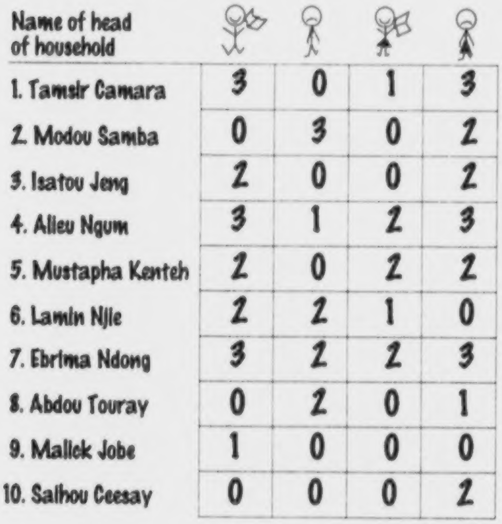


Figure 14-4. Partial Record of the Map on Paper



Name of head of household				
1. Tamsir Camara	3	0	1	3
2. Modou Samba	0	3	0	2
3. Isatou Jeng	2	0	0	2
4. Alleu Ngum	3	1	2	3
5. Mustapha Kenteh	2	0	2	2
6. Lamin Njie	2	2	1	0
7. Ebrima Ndong	3	2	2	3
8. Abdou Touray	0	2	0	1
9. Malick Jobe	1	0	0	0
10. Salhou Ceesay	0	0	0	2

CARD SORTS

You may remember that in chapter 4 we discussed two approaches: the etic "What do I see these people doing?" approach, and the emic or "What do these people see themselves doing?" approach. We discussed card sorts as one way of getting emic information. Here we will apply it to our project.

We need a listing of people, organizations, objects, events, or whatever we want to understand. In this project we might like to know whether people who are better off economically are more likely to send all their children to school, and whether poorer people are likely to send fewer, or perhaps even none. If they send fewer is it the girls who are left out.

Use the list of household heads made when the map was copied. Write each name on a separate piece of paper or a card. Work with a smaller group of people this time, perhaps six or seven at most, or else work with a series of individuals. If people are unable to read, someone can read out the name on each card to them. Ask them to sort the cards. For our study, we want them sorted by well-being. What does being well-off, comfortable, and secure in this community mean? These concepts must, of course, be translated into locally meaningful ideas. Researchers often use well-being instead of wealth for several reasons: for example, wealth may be a more limited concept, relating only to money and/or livestock, and people may be more reluctant to discuss wealth, whether their own or that of others. However, people may also be reluctant to discuss well-being in a group. You may have to work with one person at a time, or perhaps you may not be able to do this part of the research at all.

People sort the cards according to their ideas of well-being. Taking the first one, ask: "When you think about the categories we've been talking about, where would this person (or household) go?", and put that card in the appropriate pile. We do this until all the cards in the pile are sorted into the smaller piles. We will probably find that the number of categories is bigger than people first thought, as they begin to confront real cases and make finer distinctions between people.

Then, taking the first pile, ask: "What makes these people similar to each other?" "What makes them different from the people in the next pile?" Do this with all the piles and write down the answers.

In our study, we want to relate participation in education to well-being, so when the bases for the sortings are clear, begin again with the first pile, and ask: "Tell us about their school-aged children. Do the girls go to school? Do the boys go to school?" Table 14-2 shows how the results of the card sort might look.[1]

People in a group may not always agree. If you encounter much disagreement, you might carry out the process separately and privately with individuals and rank their answers. Also, well-being ranking can be sensitive, which is another reason for working with individuals. Do not dwell on the relative ranking of families *within* the piles. You are looking for patterns, not taking a detailed census.

TRIANGULATION

In chapter 7 we mentioned triangulation—the use of more than one researcher, more than one method, more than one possible explanation—to cross-check our information. In our study, we can now look back to the map we copied to see if people's card sorts of school participation by well-being of household match the figures we took off the map. For example, households 2 and 3 fell into the very poor group. In the card sort, people said that this group sends no children, boys or girls, to school. We can look at the list we made from the map to see if the map information agrees. If it does, fine. If it does not, perhaps people have a set

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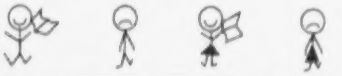
[1] Notice in the chart the references to cement buildings. These may be proxy indicators, that is, perhaps they can be useful as substitutes for other kinds of information that may be difficult or time-consuming to get. If a cement building or a corrugated iron roof is a good indication of wealth or well-being, you can get a good idea of a family's standing or the relative well-being of a village without asking sensitive economic questions. However, proxy indicators are only good if they can really be used as a substitute for what you are interested in.

Table 14-2. Well-Being Ranking: Categories and Characteristics

Well-being level	*Characteristics*	*Children's schooling*
Richest	• May have more than one compound • Ready cash on hand • Reserves of food • Help others • Have relatives or grown children who send money • Lots of cattle • More than enough plough animals and domestic animals • More than enough farm implements • Many helpers; big family • May hire other villagers • Some villages: cement buildings	• All go to school unless something is wrong with the child
Rich	• Cattle • Enough food • Help others • Plough animals and domestic livestock • Farm implements • Some have relatives outside • Some may have a few helpers; family relatively big • Some are skilled workers • Some villages: a few cement buildings	• Almost all in school; maybe one or two not (would be girls), priority given to boys
In-between	• Just enough food; some may seek help in hungry season • Few or no farm implements • Little livestock • Few or no plough animals • Many depend entirely on farming • Often small, young family • No helpers • Some villages: corrugated iron buildings	• Very few go to school; may send one boy; girls don't go
Poor	• Not enough food • Rely on others in village • Generally very few in compound • Usually no livestock • Few or no farm implements • No children in some households • Some villages: grass roofs	• Few children; cultural beliefs would prevent them from sending children to school

of ideas about rich people and poor people that are based more on stereotypes than on fact. Maybe people are prejudiced, or maybe times are changing and people just have not noticed that poor people are now sending more children to school. When we look at the card sort information we see that the information on household 2 corresponds to the map, but that for household 3 does not. We need more information on household 3 to see which is right.



Name of head of household				
2. Modou Samba	0	3	0	2
3. Isatou Jeng	②	0	0	2

Of course, perhaps it is the map that is wrong, and that is worth checking through some of the methods we will be discussing now, but it is not as likely. Many people have participated in making the map and correcting it. In one village where this method was used, a man announced that he had five children, all in school. There was a silence, until someone started laughing and said, "What do you mean? You have eleven children and five are in school." The man good naturedly agreed. You might not be lucky enough to have this correction made so easily, but the public nature of the map does encourage people to cooperate. (For this reason, it is important not to use any public information gathering device of this sort to gather information that could embarrass, diminish, or endanger people, particularly because not everyone on the map will have had a chance to agree or to refuse to participate.)

The map can lead to another technique—interviews—and we can then check the information on the map against information derived from interviews.

How are the interviewees chosen? If you recall our discussion of sampling, we said that the entire group constitutes a universe, while a selection from the group constitutes a sample. The map is supposedly a universe, and we can use it to take either a probability or a nonprobability sample to select households or people for interviewing. We could put the cards from the card sort in a box or a basket, mix them up, and draw them out one by one until we reach our desired sample size. (Note we said "supposedly a universe." Maybe some households were missed. Also remember our 25 percent of invisible girls.)

Another way to use the map is for purposive sampling, which is a nonprobability type of sampling. Here you have a purpose in selecting particular people or households. You may want to pick

- Extreme cases: houses in which no school-aged children go to school, all go to school, all boys and no girls go to school, all girls and no boys go to school.
- Typical cases: households whose characteristics reflect what appears to be the usual situation.
- Information rich cases: households where we think we can learn a lot about something, for example, poor households that have managed to send all their children to school. How did the family accomplish this?

In our study, we will use the map to do some of each kind of sampling. We will also deliberately do convenience sampling, that is, we will work with school-aged children whom we come across in the village. Are they on the map? Does the information they give about their situation correspond to the map's information? We can also talk to people other than children. Perhaps entire households have been omitted. If so, try to figure out why. Perhaps they are migrants or refugees or are not considered part of the community. Maybe they were simply overlooked.

Researchers often refer to the "six helpers" for talking to people: "who?", "what?", "where?", "when?", "why?", and "how?" will help to cover the main aspects of an issue when we do not have or do not want a prepared set of questions.

CASE STUDIES

Our mapping and interviews may help us to identify people for case studies. How did a "successful" woman accomplish what she did? What is daily life like in a family that needs its daughters' labor to survive? How do some families cope with the loss of a daughter's work while she is in school? Fleshed-out accounts of these will supplement the more basic information you get from semistructured interviews.

DAILY ACTIVITIES

In our study, we might find that knowing something about the daily activities of people is useful. Certainly we will want an account of girls' daily activities and of boys', but looking at those of adult men and women might also be helpful, because children's work often frees adults to do other work. We can interview girls and boys, women and men, and we can observe what they do as well. Observation not only enhances our understanding, but also gives us a chance to participate in some of the girls' chores to see what they involve.

Table 14-3 compares girls not in school and girls in school, as well as boys in school in a Gambian village.

Table 14-3. Comparison of Children's Activities

	Girl not in school	Girl in school	Boy in school
6:00 a.m.	Rises, bathes, prays	Same	Sleeps
7:00	Sweeps compound, fetches water, washes dishes	Same	Rises, bathes, prays revises lessons
9:00	Cooks lunch	Goes to school	Goes to school
9:30	Takes lunch to mother on farm works on farm	At school	At school
2:00	Works on farm	School day ends lunch in school, extra studies until 6	Same, if studies end early, plays football
6:00	Works on farm	Takes food to mother on farm, helps her	Fetches water, bathes
7:00	Returns home, cooks dinner	Cooks dinner, bathes	
8:00	Dinner, washes dishes	Dinner, washes dishes	Dinner
9:00-11:00		Goes to teacher for extra studies	Goes to teacher for extra studies
12:00	Goes to sleep	Goes to sleep	Goes to sleep

We might want to find out how these activities fit in with those of the rest of the household (table 14-4).

Table 14-4. Comparison of a Single Household's Activities

	Time of day																			
Member	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mother																				
Father																				
1st daughter																				
2nd daughter																				
1st son																				
2nd son																				
etc.																				

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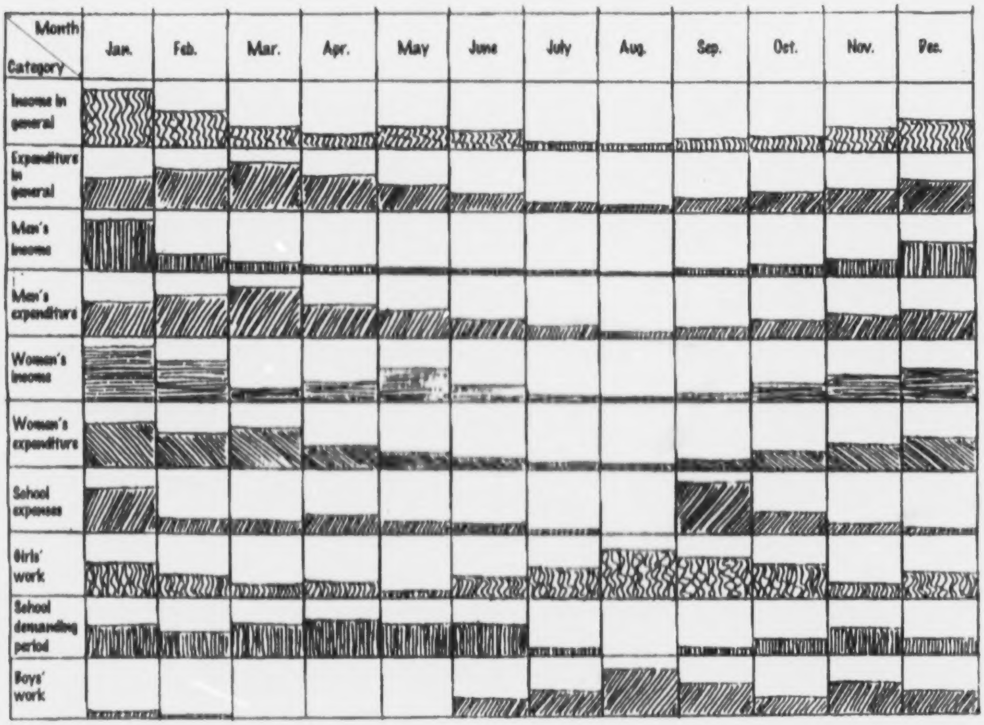
SEASONAL DIAGRAMS

A seasonal diagram is a good complement to the previous activity. People can draw a framework, either on the ground or on a large piece of paper, showing various activities, trends, and processes, by month or season. They can fill in, item by item, the relative proportions using seeds. The same number of seeds should be used for each row going across. You can see in the village seasonal diagram shown in figure 14-5 that community income is lowest when school expenses are highest, and that girls' work loads are biggest at the most demanding time of the school year.

Figure 14-5. Example of a Seasonal Diagram



Once again, different groups may give different accounts. Women's incomes and expenditures will probably not be the same as those of men. Girls' accounts of their most demanding school times can be compared with those given by teachers and parents. They may be very different.

We still need to supplement this information. Women's income may be high when school fees are due, so what is the problem? It may turn out that men pay school fees while women are responsible for paying all other expenses. But perhaps fees are only paid at the secondary level. If men pay the fees, are they the ones who decide who goes? If that is the case, finding out what men think about second-level education for girls is important. As you can see, this is like a puzzle, and we are trying to understand it by using a variety of techniques.

For example, we could use a discussion and matrix approach again to ask: "What do people see as a good life for their children? What do they think will help them to achieve these aims?" We could compare mothers' and fathers' aims for both boys and girls. In figure 14-6 a group of women have ranked their aims for their daughters and selected the best ways to accomplish them by allocating seeds or stones. For this particular group, this was the best way to put the question: "What would you pray for your daughters for tomorrow?" We can see that education is not a major strategy for achieving these aims.

Figure 14-6. Women: "What Would You Pray for Your Daughters for Tomorrow?"

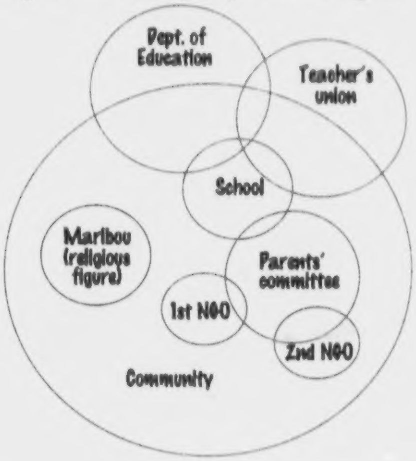
Responsibility → ↓ Aims	Parents	Government	School	Relatives	Husband
Home skills	●●●●●●●●●●●●●●●●			●●●●	
Education	●●●●●●●●●●●		●●●●●	●●●●	
Employment		●●●●●●●●●●●●		●●●●●●●●	
Travel	●●●●●●●	●●●●●●		●●●●●●●	
Successful trading	●●●●●●●●●●	●●●●●●●●		●●●	
Marriage	●●●●●●●●●●●			●●●●●●●●●	
Children					●●●●●●●●●●●●●●●●●●●●

VENN DIAGRAMS

Having a picture of the relative importance and interaction of various key institutions and agencies and of individuals who have access to resources and who are important in decisionmaking may be important. Using cut-out paper circles of various sizes, people name bodies and individuals involved in decisionmaking in relation to an issue, for example, subsidizing school expenses. They use larger circles for those whose role is more important. They arrange the circles so they show, by overlapping, the amount of co-operation among them: no overlap means no cooperation; if circles merely touch, they simply exchange information; if they overlap, they cooperate in decisionmaking (figure 14-7). Rearrange the circles until people agree that the desired picture is achieved, then transfer the drawing to paper.

People can add to these kind of diagrams by using arrows to show which way information goes, the sequence of the decisionmaking process (school to teacher's union to department of education, for example).

Figure 14-7. Example of a Venn Diagram



Venn diagrams look simple and often work well. In our study, people get confused. Everybody belongs to practically everything, they say, so how are they supposed to show degrees of overlap? When dealing with a problem, a person might be "Red Cross" at one moment and "Parent Teacher's Association" at another. Eventually, we have a pile of circles, one on top of the other, a lot of irritated people, and a challenge: how can people express these relationships in a way that is meaningful to them? Either this technique does not meet the complexity of this particular situation, or culturally, people here do not conceive of things in this way.

SURVEYS

Robert Chambers, who helped to develop many RRA and PLA methods, says that surveys, if given at all, should be "late, tight and light" and tied to **dummy tables**, which are tables whose categories you have already planned and drawn up. The only thing missing is the figures, which are filled in when the survey results come in. For example:

Girls' Persistence in School to Grade 6 by Literacy of Mother

	Mother literate	Mother not literate
Completed Grade 6		
Left before Grade 6		

Work the dummy tables out first, then you will know what questions you need to ask on your survey.

It is possible to get broad-based information using techniques other than surveys. Recently, villagers in a thirty-household Sri Lankan community made a thirty-by-eleven matrix on the ground and filled in all the items very quickly (Chambers, personal communication 1995).

Using information obtained from many of the techniques we have already discussed, we should be able, if necessary, to construct a simple survey that addresses meaningful issues. We will not ask anything more than we need. It is tempting to try to discover everything we ever wanted to know about everything, but our survey will be unworkable and exasperating for everyone concerned. Follow the steps for survey construction, administration, and analysis in chapter 9.

ANALYZING WHAT WE HAVE SO FAR

Getting this much information will probably take about two or three days, depending upon how much time people can contribute. We will need to compare, review, and analyze information that has emerged from the various techniques, the various researchers, and the various subgroups who have participated. This might have to be done twice a day or more to learn from it and plan the next stage. Let us say we have been working with separate groups of older and younger men and older and younger women in the community. Are the views of the four groups very different? Try to figure out what we have learned so far, what is missing, what contradictions have to be clarified. What mistakes did we make? What went right? How can we use this information to strengthen our approach?

IDENTIFYING PRIORITIES AND STRATEGIES FOR ACTION

In preparing matrices, participants have already shared their ideas on the various causes of and solutions to their problems. If all the other research simply supports what people have already said, the community can begin to think about how to address them. A more likely scenario, however, is that during the research we will have gathered additional information using various methods and different groups of people that perhaps reveals more problems and other possible solutions.

If this is the case, then asking groups in the community to comment on the findings might be a good idea. In a project in The Gambia, researchers used twelve cartoons to symbolize each of the problems that had surfaced, and asked each of four groups (older men, younger men and teenage boys, older women, and younger women and teenage girls) in the community to choose the six most important and place them in a basket. The researchers then asked the groups to stick the cartoons in order on a large card along with a precut circle for each to show relative importance. (Remember, such drawings may have little meaning somewhere else. The cartoon marked "3" might be "read" as a big house and a tiny house.) You can see some of the cartoons later in this chapter.

Each group also discussed the causes of each problem, what they were doing about it now, and any other options they could think of that might help to solve it. A facilitator wrote down the causes, solutions, and so on. One group that was finding it difficult to decide used a technique called **pairwise ranking,** which is also useful for other stages in the research. People are asked, individually or as a group, to compare the first item on the left side of the diagram with the first one running across the top (figure 14-8). Which is more important? Write that one in the box. Then move on and compare the first item, left side, with the second item running across the top, and so on. The preferred items can easily be counted directly from the boxes.

Figure 14-8. Pairwise Ranking Matrix

PROBLEMS	Lack of facilities	Pregnancy	School fees	Losing traditional values	Distance from home	Early marriage
Lack of facilities	▨	pregnancy	lack of facilities	lack of facilities	lack of facilities	early marriage
Pregnancy	▨	▨	pregnancy	pregnancy	pregnancy	pregnancy
School fees	▨	▨	▨	school fees	school fees	early marriage
Losing traditional values	▨	▨	▨	▨	distance from home	early marriage
Distance from home	▨	▨	▨	▨	▨	early marriage
Early marriage	▨	▨	▨	▨	▨	▨

Problems	No. of time preferred	Rank
Pregnancy	5	1
Early marriage	4	2
Lack of facilities	3	3
School fees	2	4
Distance from home	1	5
Losing traditional values	0	6

Pairwise Ranking:

To prepare a pairwise ranking of opportunities (or problems) use the sample ranking table as the model. Prepare separate exercises for the set of options for the three to five most important problems. The options for each problem are listed on the top and left side of the matrix. Each open square represents a paired comparison of the points listed at the top and extreme left. For each comparison, ask the group which option is more likely and why. Record the most likely option in the square and develop a list of reasons for the selections. When the chart is completed, add up the number of times each item was identified as more important than the rest, and arrange them in appropriate order. Repeat the exercise for the other major problems and options.

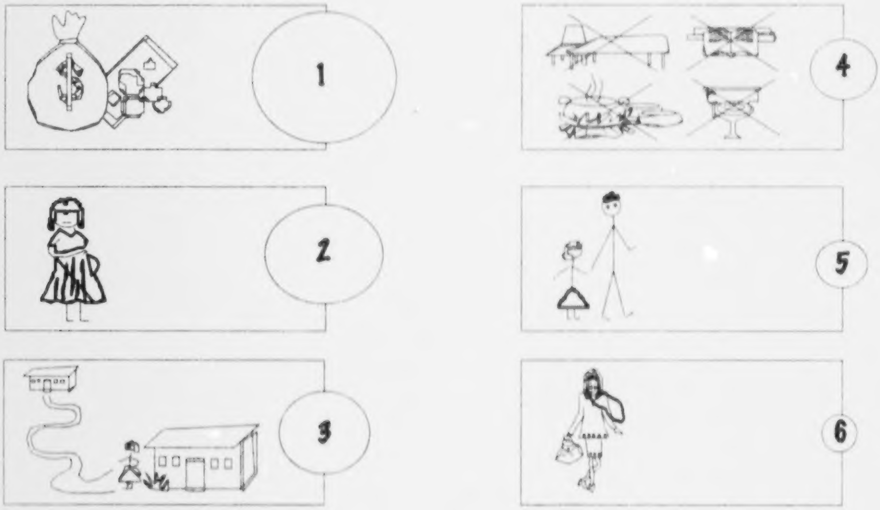
Another way, which allows each person in a group to choose independently, is to mark the various problems on a wall using words or other symbols. Bags can be hung on the wall under each problem and people can put seeds into the bags according to their priorities.

When the groups were finished, they convened in the village center and taped their charts to the side of a van. A representative of each group explained the group's chart. Here was the first big mistake. The old men finished first, so their chart was taped on the van first, and they spoke first, at considerable length. People began holding their heads and looking intimidated. Fortunately, the younger women, when their turn finally came, were led by a very strong-minded girl who was prepared to speak up, but this was a piece of luck. But before the young women could speak, the other three groups sent them off to fetch benches from the school so that everyone could sit comfortably. They almost missed their turn.

When all was said and done, the old men had very different views from the young women and girls. They were worried about girls losing their traditional values and getting pregnant. The younger women and girls were more worried about school fees, other school expenses, and distance from home.

The group as a whole was then asked to select six problems that the community thought it could do something about, using largely its own resources, perhaps plus some technical advice. This they did, after a lot of discussion, choosing the following: school fees, girls getting pregnant, distance from school, lack of school facilities such as furniture and toilets, early marriage, and girls losing their traditional values (Figure 14-9).

Figure 14-9. Ranking of Problems in Order of Importance



Even though the views of older men usually prevail in the community and the voices of young women and girls are not commonly heard, no group had "won" or "lost" in this exercise. The final chart was quite different from any of the four individual charts, although older men did manage to get more of their concerns (but not in their original order) on the chart.

If the discussion is going to be contentious or if one group is going to be reluctant to speak up in the larger setting, we will have to develop a strategy to ensure that their voices are heard. If it is unaccepatable for both sexes to convene in one place, an agreed person may have to act as a go-between, presenting each side's case to the other.

Sometimes the problems and solutions selected can be handled entirely through village discussion and mobilization, guided, perhaps, by the village committee or some other association. Others require negotiations with bodies outside the village: for example, can the school have more women teachers to improve girls' security and act as role models? Yet others require technical advice or skills input, sometimes from inside the community, sometimes from outside. The community needs better school facilities, especially school furniture and a bigger kitchen. What will this involve in terms of time, materials, skills, and money? Will it come from donors, from the community, or from a combination of the two?

Technical experts, such as school heads, inspectors, district education officers, either on the team or available to it, may need to be consulted now. Ideally, for each problem, the team should cost several strategies in terms of resources required. These kinds of costings are common in agricultural projects, where PLA is a popular approach, as table 14-5 shows.

Table 14-5. Casting Out Two Well Rehabilitation Options

Option two: local well rehabilitation	*Cost (D)*
1. Seven molds and cement	770
2. Topping and cement	275
3. Apron and 6 bags	330
4. Transport of sand and gravel	300
5. Skilled labor	2,000
6. Steel rods	1,500
Total	5,175

Option three: area council well rehabilitation	
1. Internal plaster—20 bags	1,100
2. Topping: 3 bags	165
3. Apron: 6 bags	330
4. Steel rods: 40 lengths	600
5. Transport of sand and gravel	300
6. Skilled labor	1,125
Total	3,620

Source: National Environment Secretariat, Kenya (1989).

In education projects, however, many of the costs may be less tangible, or more local human resources may be called into play. In our project, the options involved attitude changes, values, and power relations. Others concerned internal organization in the village or the flow of information between people.

A variety of experts may be needed. One part of the solution to keeping girls from seeking lunch money from older men and boys would be to improve income from gardening, which might require better fencing and insect control. Here an agricultural expert may be more useful than an official of the ministry of education.

Now, in a larger village setting invite all the interested parties (community residents, PLA team, nongovernmental organization representatives, and appropriate technical experts) to assemble, usually in a large indoor or sheltered setting. The aim is to discuss and assess the alternative options for each problem. People may want to make additional suggestions or corrections. Assessment depends on having some criteria for making an evaluation. In the example shown in table 14-6, in assessing the options for paying school fees, the villagers decided that they wanted to take time, costs, feasibility, fairness, and other factors into account. They ranked each of the options and chose option number 1.

Table 14-6. Villagers' Ranking of School Fees Options

Option	Time?	Costs?	Feasible?	Fair?	Sustainable?	Village resources?	Score?
Improve women's gardens/fences/ storage of vegetable pesticides, etc	1	2	3	3	3	3	15
Pay fees at the end of harvesting season	3	1	3	3	3	3	14
Sponsors for girls' education	1	1	3	3	3	2	13
Income generation program for young men's carpentry workshop	1	1	3	3	3	1	12
Government to reduce fees	1	1	2	3	3	1	11
Educate girls whose income will pay next generation's school fees	1	1	3	3	3	2	13
Key: 3	Long	Low	High	High	High	High	
Note: Score "4" where no cost involved (otherwise, low-cost options receive low score) 2	Medium	Medium	Medium	Medium	Medium	Medium	
1	Low	High	Low	Low	Low	Low	
—	Not relevant	Not relevant	Not relevant	Not relevant	Not relevant	Not relevant	
?	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	

Other ways of selecting options are available, for example, voting for or "buying" options (see National Environment Secretariat, Kenya, 1989, p. 67).

PREPARING AN ACTION PLAN

Once priorities and strategies for action have been identified for each problem, the community, through an association or committee, can begin to prepare a community action plan; decide which to tackle first; and determine how to assess their resources, how to coordinate actions, and how to monitor and evaluate progress. Table 14-7 presents the action plan that emerged from our study. Note that for each problem, people identified several strategies or "best bets" and decided to act on several of the more important ones.

ASSESSING RESOURCES

Participants now need to discuss how to get the resources needed to carry out the options. Do they involve NGOs, government departments, international agencies, bilateral donors, religious bodies? What kind of information do these entities require? How should they be approached? Having the assistance of NGO representatives and perhaps a civil servant to help with questions like these would be very helpful, both at this meeting, and over the longer term. The development of the action plan may make the community's applications more attractive, because it shows that people have reflected realistically on their priorities and options.

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Table 14-7. Community Action Plan

Problem:	School fees
Best bet:	Sponsors
Score:	13
Action:	It has been agreed that each head of household, male and female, will contribute one dalasi to a fund to inquire into sponsorship for girls' education. The fund will be collected on a continual basis. The money will be banked, not left in the care of any individual. More discussion is required on this before responsibility is assigned.
Problem:	School Fees
Best bet:	Upgrade gardens
Score:	15
Action:	Fencing and pesticides are needed. Seek materials from outside. Villagers willing to provide labor. First step: organize a village meeting. The Kambeng kafo, which includes members from nearby villages, will be responsible for this initiative. The key contact people are: Omar Faye (m), Aminatta Sambu (f), Makaddy Touray (f), Kaddy Bah (f), Abdou Jarju (f).
Problem:	Early marriage
Best bet:	Insist girls finish education
Score:	20
Action:	This is everyone's responsibility. Much is invested in girls' education and it should not be ignored when it comes to talk of marriage. The school committee will take special responsibility to talk to parents. Girls should get the chance to finish their education, then marry.
Problem:	Early marriage
Best bet:	Educate parents about the value of girls' education
Score:	19
Action:	There are government programs available. A follow-up sensitization program is planned for next year. We can ask the headmistress to arrange this for us. The school committee can discuss this with the headmistress.
Problem:	Girls' early pregnancy
Best bet:	Girls form a group to talk together
Score:	19
Action:	The young girls will form a special group to talk together, advise each other, etc. Meetings will take place once a week on Sunday afternoons. The key contact people are Fatou Bojang (15 yrs.), Fatou Sonko (15 yrs.).

Table 14-7. Community Action Plan (Continued)

Problem:	Girls' early pregnancy
Best bet:	Teachers to inform parents about evening classes
Score:	19
Action:	Parents will hold discussions with the School Committee, who will talk to teachers on their behalf. The School Committee is responsible for this initiative.
Problem:	Girls' early pregnancy
Best bet:	Women engage in thrift-savings
Score:	19
Action:	We are familiar with the Ossuhu system of credit savings and loans. Women's kafos already have Ossuhus in place. Now we will pledge 50% of the income from the Ossuhu directly to girls' education. But men too should save like this. Villagers will continue discussions about men and women saving together in this manner for girls' education. Every adult is responsible for putting this initiative in place.
Problem:	Girls' early pregnancy
Best bet:	Government to introduce family planning at the primary level
Score:	19
Action:	A family life education program is available from the government. Materials are in place and teachers from schools will be invited to participate in training from September 1994 on. We can arrange this through the headmistress.
Problem:	Girls' early pregnancy
Best bet:	Parents supervise evening classes on a rota basis
Score:	17
Action:	A supervision committee has been elected. People agreed to take responsibility for specific evenings. Key people: Malang Jammeh (m) Monday Fatoumatta Sanneh (f) Tuesday Maimouma Sonko (f) Wednesday Jonkong Kuyateh (f) Thursday Anta Jarju (f) Friday It is the responsibility of each person to find someone to continue the rota in her or his place.
Problem:	Girls' early pregnancy
Best bet:	Government to support the training of local women teachers
Score:	16
Action:	The intake of girls at the primary level is the first step in this long-term initiative. The Busura Youth Society will be responsible for encouraging the enrollment and persistence of girls in primary school so that in the future, many female citizens of Busura will be ready to train as teachers. Key contact person: Kallelu Colley, President of B.Y.S.

This was agreed by the villagers of Busura on June 9th, 1994.

For internal resources, the committee can look at local institutions and associations, NGOs, and so on, and try, using a matrix perhaps, to relate them to the resources required. List the organizations down one side of the matrix, the resources required across the top, and ask people to distribute seeds or mark numbers as before. Individual- or household-based local resources, such as labor, skills, time, building materials, money, land, and professional services, will almost certainly be required. Taking each participating household, the committee, possibly working with the team, might rank them on their ability to contribute, on a scale of 0 (low potential for contribution) to 3 (high potential for contribution) (figure 14-10). This procedure may, however, require sensitive information, and could be quite disruptive. One of the challenges of PLA is working out with local people how to handle situations like this.

Figure 14-10. Household Assessment Chart

(household)	(labor)	(skills)	(time)	(materials)	(money)
1. Modu Gomez	3	1	1	1	2
2. Lamin Samba	3	3	2	2	2
3. Abdul Jallow	1	2	2	1	1
4. Haddy Ndure	1	3	0	3	2

Completing the Process

The village committee or other organization continues to work when necessary with representatives of donor agencies, government officials, and technical experts. As people become experienced in the PLA process and learn how to approach and work with donor agencies, they should be able to continue the self-help process and apply it to other problems.

ADVANTAGES, DISADVANTAGES, AND DANGERS OF RRA AND PLA

Some of the advantages of RRA are obvious by now: working with and learning from local people and obtaining relevant information in a timely, cost-effective way. RRA also has a variety of disadvantages. Michael Cernea, a supporter of rapid assessment procedures, has pointed out that "shortcuts are not beaten paths. They may be strewn with obstacles, confront slippery slopes and hide methodological dangers" (Cernea 1992, p. 16). Here are some possible problems. First, in relation to the researcher, you can only do something fast and well after you have learned the fundamentals. When you are taking research shortcuts and accepting "appropriate imprecision," you have to know enough about research and about the situation you are studying to know what tradeoffs you are making. How much imprecision is too much, for example? You can end up with a partial picture based on overgeneralization from too little or inadequate information. For instance, you might choose inappropriate indicators, rely on too few key informants, and obtain a snapshot picture of the situation rather than an understanding of systems and processes.

Second, there are dangers in relation to the process itself. RRA is excellent for getting locally meaningful information, particularly in relation to shared group ideas and perceptions, but in consequence, combining the results of separate studies to get a broader picture can be more difficult. Indeed, no one community may have the picture that you seek. Cernea describes as effective a conventional study in which the male circumcision practices of 409 African ethnic groups were related to HIV seroprevalence statistics. RRA would not have been as useful here. A group can tell you about its circumcision practices, and possibly about its incidence of HIV-related deaths, but doing this 409 times through RRA is not an efficient way of establishing the relationship. Also, when relationships can only be understood through detailed information collected over a period of many years, for example, following a cohort or group of individuals through a series of events over a period of years to see what happens to them and why, rapid research is not satisfactory. As with all research approaches, knowing what they were intended for and understanding their strengths and weaknesses is the best protection against misuse.

Third, there are practical dangers that arise from not carrying out the processes properly: choosing the wrong team; not involving local people at all stages of the work; falling back on the comforting security of questionnaires, "instruments," and statistics when the process seems too chaotic; preaching and lecturing rather than listening to local people; assuming that your discipline is the only one with anything to contribute; and ignoring people who make you uncomfortable (or whom you make uncomfortable), such as women, the poor, the handicapped, and other less powerful segments of the community.

Arrogance—cultural, professional, class, and sexual—is one of the two biggest sins in RRAs. The second is betrayal of community trust: raising people's expectations without taking responsibility for practical follow-through. RRA is not simply a way of finding things out. It is a way of getting things done. Few other approaches get local people as enthusiastically involved as RRA does, and the let-down if nothing useful comes of it is all the more serious as a result.

The advantages of PLA are also obvious: it is excellent for enabling local communities to identify and address their own problems on a continuing basis. However, addressing some of the problems may be difficult if they require interventions that the community itself cannot provide or the provision of which it cannot easily influence. Such a situation can arise if the problem cannot be handled at the local level, for example, policy changes, ministry or organizational restructuring, poor distribution of textbooks. RRA teams may encounter this situation as well, but such teams are often commissioned by institutions that can create or influence change at the nonlocal level. However, many problems can be dealt with at the local level, and people have better grounds for making a case for external change if they have clearly identified what is wrong and how it might be rectified.

THE PHILOSOPHICAL AND IDEOLOGICAL FOUNDATIONS OF RRA AND PLA

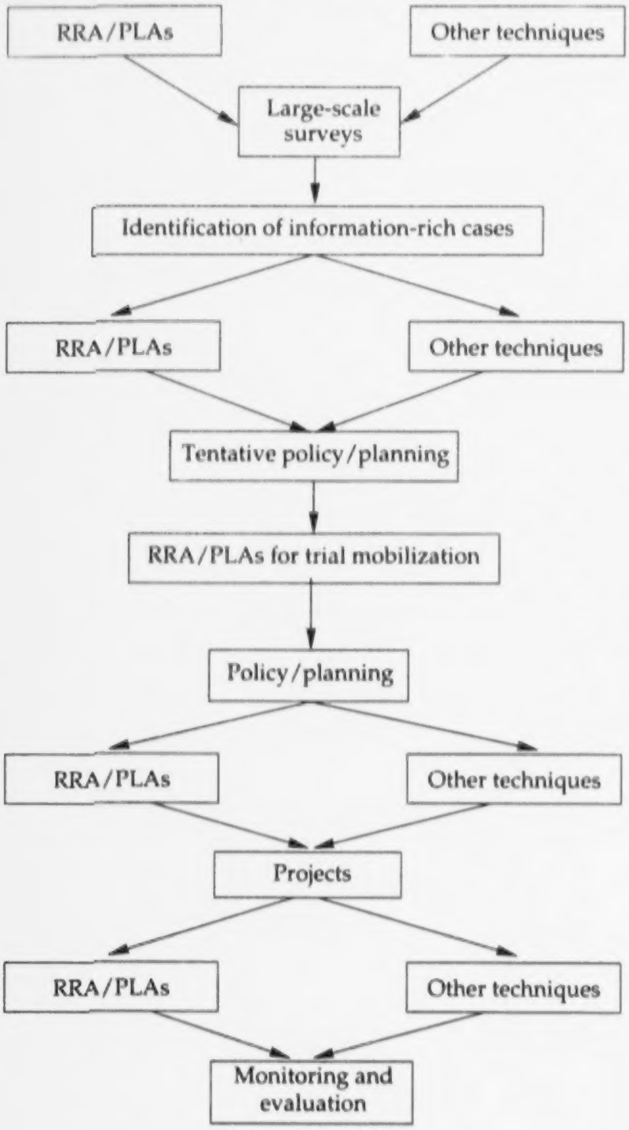
Now that you have worked through the exercise, you can probably see that RRA and PLA represent a mix of phenomenological, critical theory, and postpositivist thinking. Phenomenologically, they take a holistic and dynamic systems approach that recognizes that human behavior and motivation functions in a changing, adaptive way in the context of biological, physical, environmental, and cultural systems; and they recognize the existence of multiple perspectives on a situation or problem. Influenced by critical theory, they attempt to address these perspectives and antipoverty biases through a series of reversals of perspective and focus. Finally, many projects are shaped by a research plan, which although always open to adaptation, does make certain assumptions about what topics are important and what subtopics these involve, much in the manner of a postpositivistic approach. For an excellent discussion, see Jamieson (1987).

HOW YOU CAN USE RRA AND PRA AS PART OF A LARGER STUDY?

Because each community is unique, RRA and PLA work best at the local level. Sometimes, however, combining the results of many communities is possible, to get a picture of a region. For example, mapping has been used in 130 villages in Nepal, covering 6,544 households. Five maps on separate topics were made for each village (ActionAid-Nepal 1992). Work such as this can be done in a participatory mode locally, and the results analyzed for use on a larger scale as well.

Both can be used in towns and in rural areas and within organizations. They can become part of national or regional research strategies. For example, using RRA and PLA at the local level, you can create meaningful questions for national surveys. You can then explore the findings of the survey in more detail by going back to do local research. You can also study the feasibility of projects at the local level and create more realistic policies. Finally, you can see how they are working out by monitoring and evaluation through RRA and PLA. Figure 14-11 illustrates possible points at which RRA and PLA might be used.

Figure 14-11. RRA and PLA as Part of a National Research Strategy



You have probably already thought of ways to improve the methods discussed in this chapter. Their application to educational problems is still new, so try out your ideas and let others know how they work. And do profit from the experiences of others. Try to read some of the works listed at the end of the chapter, which tackle a lot of issues not covered in this limited introduction to the subject.

Our Girls

In interviews and surveys, girls, parents, and teachers may give reasons for girls leaving school. You might like to know more about community perceptions. How does the community rank the problems facing girls? What are the current coping strategies? What do they think could be done? What options are practical? Can the community develop an action plan using some of its own resources? PLA will help with all of these.

PLA SOURCES AND CONTACTS

RRA Notes has been a major source on RRA, PRA, and PLA. *RRA Notes* 13 is recommended to any reader seeking a good introduction. A number of special issues have focused on particular topics, such as applications of well-being and wealth ranking (No. 15), health (No. 16), training (No. 19), and participatory tools and methods in urban areas (No. 21). *RRA Notes* is available from the Sustainable Agriculture Programme at International Institute for the Environment and Development (IIED), 3 Endsleigh Street, London, WC1H 0DD, U.K., tel: 171 388 2117, fax: 171 388 2826.

To reflect the growing diversity of participatory approaches and methodologies *PRA Notes* has been renamed *PLA Notes* since February 1995. It will be distributed regularly three times a year. Subscribers from the North (except for libraries) are charged an annual subscription rate of £15/$25. It is sent free to those on the mailing list in the South and those with problems obtaining foreign exchange.

The IIED also produces numerous other publications on participatory approaches and methodologies. These are free on application to organizations and individuals in the South, although there are charges for organizations in the North. For a publication catalog and further information contact Ginni Tym at the IIED.

An annotated bibliography of PRA materials was published by The Institute of Development Studies in March/April 1995. The bibliography titled, *Participatory Rural Appraisal: Abstracts of Selected Sources* (Development Bibliography No. 11), contains abstracts of 800 PRA documents and videos. These are organized by documents and topic, as follows:

Agriculture
Countries of the "North"
Food Security
Forestry
Gender
Health
Irrigation
Livestock
Methods
Participatory Monitoring and Evaluation
Soil and Water Conservation
Training and Education
Urban
Videos on PRA
Visual Literacy

The bibliography is available from the Publications Office, Institute of Development Studies, University of Sussex, Brighton, BN1 9RE, Sussex, U.K., tel: 273 606262, fax: 273 621202/691647.

The bibliography is also available on the Internet, through TELNET to LIB.IDS.AC.UK, then log in: HELLO GUEST.MARC. GreenNet subscribers will be able to use their "Internet access" option to connect to Devline.

If you require any of the sets of abstracts by topic, or printouts of abstracts by country, contact Jenny Skepper-Stevenson at the Institute of Development Studies to request copies. The Institute can also send you a diskette with the abstracts on it. This is available on Word, WordPerfect, Word for Windows, WordStar, or an ASCII/DOS Text File (compatible with any system). State which you require and the disc size (3.5" or 5.25" IBM discs).

For information about field experience, training opportunities, and national PLA networks contact:

Kenya
Geoffrey Atieli
Action Aid
P.O. Box 42814
Nairobi, Kenya
Tel: 2 442200/ 440440
Fax: 2 445843

Gambia
The Director
ActionAid The Gambia
P.O. Box 725
Banjul
The Gambia

South Africa
Midnet PRA Interest Group
c/o AFRA, 123 Loop Street
Pietermaritzburg 3201
Tel: 331 457607
Fax: 331 455106

U.K.
Sustainable Agriculture Programme
IIED
3 Endsleigh Street
London WC1H 0DD
Tel: 171 388 2117
Fax: 171 388 2826

FURTHER READINGS TO HELP YOU

ActionAid The Gambia. 1992. *From Input to Impact: Participatory Rural Appraisal for ActionAid The Gambia.* London: International Institute for Environment and Development.

Cernea, Michael M. 1992. "Re-tooling in Applied Social Investigation for Development Planning: Some Methodological Issues." In N.S. Scrimshaw and G.R. Gleason, eds., *Rapid Assessment Procedures (RAP): Qualitative Methodologies for Planning and Evaluation of Health-Related Programmes.* Boston: International Nutrition Foundation for Developing Countries.

Chambers, Robert. 1981. "Rapid Rural Appraisal: Rationale and Repertoire." *Public Administration and Development* 1:95–106.

________. 1983. *Rural Development: Putting the Last First.* London: Longmans.

________. 1991. *Some Sources on Rapid, Relaxed and Participatory Rural Appraisal.* Brighton, U.K.: University of Sussex, Institute of Development Studies.

________. 1992. "Relaxed and Participatory Rural Appraisal: Notes on Practical Approaches and Methods." Notes for a workshop at the Swedish University of Agricultural Sciences, May.

______. 1994a. "The Origins and Practice of Participatory Rural Appraisal." *World Development* 22(7):953–69.

______. 1994b. "Participatory Rural Appraisal (PRA): Analysis of Experience." *World Development* 22(9):1253–68.

______. 1994c. "Participatory Rural Appraisal: Challenges, Potentials and Paradigm." *World Development* 22(10):1437–54.

Ford, Richard, Charity Kabutha, Nicholas Mageto, and Karafa Manneh. 1992. *Sustaining Development through Community Mobilization: A Case Study of Participatory Rural Appraisal in The Gambia.* Worcester, Massachusetts: Clark University and ActionAid The Gambia.

Jamieson, Neil. 1987. "The Paradigmatic Significance of Rapid Rural Appraisal." *In Proceedings of the 1985 International Conference on Rapid Rural Appraisal.* Khon Kaen, Thailand: University of Khon Kaen.

Kane, Eileen, and Mary O'Reilly de Brun. 1993. "Bitter Seeds." Washington, D.C.: World Bank, Africa–Sahelian Department, Population and Human Resources Division. Draft.

Kumar, Krishna. 1987. *Rapid, Low-Cost Data Collection Methods for A.I.D.* Program Design and Evaluation Methodology Report No. 8. Washington, D.C.: U.S. Agency for International Development.

Mascarenhas, James, and others, eds. 1991. "Participatory Rural Appraisal: Proceedings of the February 1991 Bangalore PRA Trainers Workshop." *RRA Notes* No. 13. London: International Institute for Environment and Development.

National Environment Secretariat, Kenya. 1990. *Participatory Rural Appraisal Handbook: Conducting PRAs in Kenya.* Nairobi, Kenya: National Environment Secretariat; Kenya; Clark University; Edgerton University; and the Center for International Development and the Environment of the World Resources Institute.

RUHSA. 1993. "Validating the Wealth Ranking by Participatory Rural Appraisal Versus Formal Survey in Identifying the Rural Poor." Christian Medical College and Hospital: Tamil Nadu, India.

Scoones, Ian, and Jennifer M. McCracken. 1989. *Participatory Rapid Rural Appraisal in Wollo, Ethiopia.* London: International Institute for Environment and Development.

Stone, Linda, and J. Gabriel Campbell. 1984. "The Use and Misuse of Surveys in International Development: An Experiment from Nepal." *Human Organization* 43(1):27–37.

Theis, Joachim, and Heather M. Grady. 1991. *Participatory Rapid Appraisal for Community Development: A Training Manual Based on Experiences in the Middle East and North Africa.* London: International Institute for Environment and Development and Save the Children.

15

Recording and Organizing Qualitative Information

summary

This chapter shows how to record information that you get from a variety of qualitative techniques. ***Written notes, tape recording, and video*** *are possible ways.*

Some kind of recording method is essential. If you rely on memory alone, you will forget a large part of what you learned.

An organized retrieval system will help you to keep track of what else you need, and is necessary for the next stage in your research, which is analysis.

Most people when they envisage a research project see it as having two parts: collecting the material and writing up the results. These are the phases most familiar to the average person, and so we tend to overemphasize their place in the research, and to put too little importance on the other "invisible" parts of the research process. We have dealt with one of these invisible parts already: planning your research. A second major one is the way you record and organize your information. Together, these two general areas take up at least as much time as collecting the information, and unfortunately, they are not nearly as interesting.

Most people want to spend as much time as possible interviewing people, reading new material, or observing something interesting. That, after all, is what they consider research to be. Few want to spend time psychoanalyzing themselves ("What do I *mean* by classroom participation?" "What do I *mean* by successful women?" "What do I *really* want to study?"), and even fewer want to go through the boring job of recording and organizing the information they collect.

WRITTEN NOTES

Taking notes is included with qualitative methods because quantitative methods often have their own recording forms, such as a questionnaire, an interview schedule, or a standardized scale. RRA and PLA also have some "on the spot" recording forms, and chapter 12 showed some ways to record specific types of observations.

But when information is coming at you from all angles—people talking, people doing things, and events happening all at the same time—how can you record it all? Some people scribble notes on old bills, odd bits of paper, and even on the palms of their hands if they are desperate. When the time comes to try to pull the information together, they have hundreds of bits of battered paper, saying things like

*** Chief Mwele-1942**

and

*** 14 boys, 11 girls**
11 boys, 14 girls

The usefulness of notes like this is very limited.

Most of us have other demands on our time, so we tend to think that what little time we have should be spent on the "meat" of the project, collecting the information. No need to write it down in any great detail. It wastes research time, and anyhow, you will remember it. Take a few rough notes and catch up later. Right? Wrong. There are some hard truths in life: you will not remember it and you will never catch up. Robert Rhoades (1987, p. 121) has estimated that researchers forget 50 percent of the details of an interview within twenty-four hours, and more than 75 percent by the end of the second day.

We tend to remember the unusual and things that confirm our expectations or fall into patterns we have already identified. A lot of the rest gets lost. It is not a question of bad memory, but of your brain being overloaded. New information keeps coming in, day after day, perhaps in settings in which everything is new to you—the people, the place, and maybe even the customs—and you are constantly trying to make sense of each bit of it while remembering dozens of new names, road directions, where you left your notebook, and so on.

So when you begin to plan your research, allow time for recording and organizing. Depending on the method you use and the content of your material, for every hour's worth of information you collect, you may need three or more hours of recording and organizing time. Questionnaire forms, once prepared, take less time, but certain specialized kinds of information, such as recording of body movements and gestures, take more. This may seem like a lot of time, particularly for a part of the research you may not have known existed, but proper recording, in addition to its more obvious benefits, will save you weeks, or even months, of time when you start to analyze and write up the work. In some cases, it has been known to make the difference between completing a research project and not.

A number of ways of recording information in written form are available. The one you have probably seen most often is the questionnaire, which is not only a guide for getting information, but also a form for recording it. You can also develop a similar form to record interviews when you are going to ask the same questions of a number of people.

But what if your interviews involve putting different questions to each person, observing, and looking at records? Suppose you are making a study of what has happened to boys and girls who were in Grade 3 three years ago. You want to know how many of each are still in school, and of the ones who are not, you want to know why they left and what they are doing. You will look at school records to tell you who was in the class three years ago, and later records, which may tell you when the children who left did so. However, the records will not tell you where they are now. The students themselves might know. You might try going into a Grade 6 class, asking the students to draw their Grade 3 classroom on the blackboard, and asking where each child is now. Of course, if they have not shared the same Grade 3 class, you have to ask only those who were in the class that interests you. You could record this information on a standard form you create:

	Name of Student?	**Date Left?**	**Reason for Leaving?**	**Where now?**	**Doing what?**
1.					
2.					
3.					

You will probably also have to interview people. Some children may have left the district, but have relatives locally. Some of the teachers may remember some details. If all you want to do is fill in the chart and count the answers, you do not have to make detailed notes, but suppose you want to talk to some of the children or their parents in detail to see exactly what considerations enabled them to remain in school or caused them to leave. How will you record that? Some of the questions you ask the children, the parents, and the teachers will be the same for all, but many will differ, and will be determined by what the person tells you.

Suppose many of the girls say they have no time to go to school because they have too much work. You might want to know exactly how much work is involved, but just asking may not be enough. Researcher Richard Anker has pointed out that people who are not working in paid employment may not need a precise sense of time, may under-report activities that take a short time, and generally under-report all their activities. Parents tend to under-report the economic activities of their children and men of their wives. He concludes that observation is better than questionnaires (Anker 1981, pp. 8–10). How are you going to record this observation?

Many methods for recording information are available, including computerized systems such as LISPQUAL, QUALPRO, ETHNOGRAPH, KWALITAN, and a variety of others that allow you to categorize and retrieve information quickly (see Miles and Huberman 1994, pp. 311–17), but they are all based on a process similar to the one described here. If you can think of a better one, use it (and please tell the rest of us what it is).

The method used here can be used to record

- Observations of people, processes, and events
- Interviews
- Material taken from records, books, and other written sources.

We will use an observation situation for the first example. Suppose that officials of the teachers' union and ministry officials have had a number of disagreements on how to run gender sensitization tours around the country. The union members think the programs are not effective because the officials choose inappropriate people who just use the tours as an excuse for a trek, visit only one school in an area, and antagonize the schools that are omitted. This is not helping girls' education, they think. The ministry officials think the teachers are afraid they are being spied on and have now decided that there is no smoke without fire. Maybe they *should* be spied on. You are studying these differences as they relate to specific issues that you have found to be important in the union (box 15-1).

Box 15-1. Points of Disagreement (I) between Teachers' Union Members (II) and Ministry Officials (III) in X District (IV)

I. *Points of Disagreement*
  A. On the part of teachers
    1. Selection of too few local schools
    2. Selection of inappropriate team members
    3. Suspicion of ministry officials
  B. On the part of ministry officials
    1. Noncooperation of local teachers
      a. Refusal to participate
      b. Failure to provide local information that would make the tours more successful

(etc.)

You have decided that one of the techniques that will give you information on point A.3., suspicion of ministry officials, is to observe union meetings, at which this issue is frequently discussed. Assume that you have sat through your first meeting and have taken notes in as much detail as possible during the meeting. You now have a set of rough notes. The aim is to convert them into as detailed a record as possible in a form that will allow you to retrieve and use the information when you need it. A number of steps and materials are involved.

Step 1 is to have as accurate an account as possible of what occurred in your observation, where, under what circumstances, and in what sequence. For this you will need a hardbound notebook with sheets sewn in to keep notes secure and in chronological order.

Using the Notebook

Use only the pages on the right-hand side of the book. Do not write on the backs of the sheets or on the backs of any other sheets you might use. Take all your rough notes in this notebook, including notes of interviews, observations of events, rough diagrams, and notes from books or documents. Avoid using other paper of different sizes, loose sheets, old envelopes, and so on except in cases where a notebook would be inappropriate or impossible. Number each notebook with a Roman numeral (I, II, ...) and each page in the notebook with an Arabic number (1, 2, ...).

Step 2 is to add details and information on circumstances, physical features, background, and factors that may have influenced the type and quality of the information.

After the meeting, re-read your rough notes and add anything that you did not have time to write during the meeting. Do this as soon as possible after the meeting. At the end of the notes add any of the following, if relevant:

- Circumstances and background. How you came to attend the meeting (who suggested it or invited you, or whose permission you got). This is important. If the person who sent you or gave you permission is disliked or suspected by the people at the meeting or by an interviewee, you may not be aware of it at the time, but it may help to explain later why a particular meeting or session went the way it did.
- Physical description of the setting, descriptions of the participants, their placement, movements from these positions, and so on. A floor plan or diagram may be useful. Maybe all the people on one side of the issue side sat in a corner on the left. You will not know that until you are more familiar with the situation, but if you do not record it now, you will never be able to look back and discover it.
- Any background information on the participants or the event that you are aware of. This may include whether they have already had a sensitization visit, whether they used to work for the ministry, and anything else that might be helpful, but which you did not learn during the course of the meeting. For example:

Mrs. Robinson left the Ministry of Education a year ago to become headmistress of the local school. She is married to the minister's brother, and sometimes goes on sensitization tours herself.

or

A meeting of this organization is held every month. According to the membership rules, only teachers are permitted to attend, but today the chief and two representatives of the ministry are present.

- Record anything that you think may have affected the quality of your notes. Perhaps you suspect that people were inhibited in your presence; or perhaps you were a participant yourself, and possibly restricted in what you could observe; or possibly you could not take any notes during the meeting itself and are writing entirely from memory.

Step 3 is to extract the material from your hardbound notebook in such a way that you can retrieve the information later and write up your report. For this you will need a typewriter or computer (good, but not essential); paper; carbon paper, if not using a computer; and file folders. The paper should be roughly eight inches by five inches. Use standard typing paper or whatever other paper you can get, cut in half. You can also use specially treated paper that allows you to make copies without using carbon paper.

Now type or rewrite the notes from your hardbound notebook onto the half sheets of paper. Make an original, or top copy, and three or four copies of each sheet. Begin the first sheet and every sheet with these headings in the upper right-hand corner:

1. **Topics**
2. **Event observed or interviewee's name**
3. **Place of event or interview**
4. **Date**

When you complete the circumstances and background, which may take several pages, begin on the notes proper from the hardbound book.

As you finish transferring each page from the notebook to the half sheets, cross out the page in the notebook. If for any reason you do not take all the material from the notebook (it may seem irrelevant at the time, perhaps) put an "X" or other obvious mark beside the material and check back through the notebook from time to time to see if this marked material is still not useful.

Number each half sheet when you type it. You can number the sheets consecutively through all your notes, or simply begin again at one for each day's notes. You may also wish to give the number on each typed page of the notebook and notebook page from which you are typing in case you ever need to go back to the original rough notes. Having numbered each notebook with a Roman numeral and each page of the notebook with an Arabic numeral, list them in one corner of the half sheet, for example, III:36.

When you have the entire observation written up on half sheets, go back over each sheet and fill in the headings. Numbers 2, 3, and 4 will be easy. Here they are for our sample half sheet:

1. **Topic(s)**
2. **Teachers' Union Meeting**
3. **Vocational Center Hall**
4. **August 6, 1994**

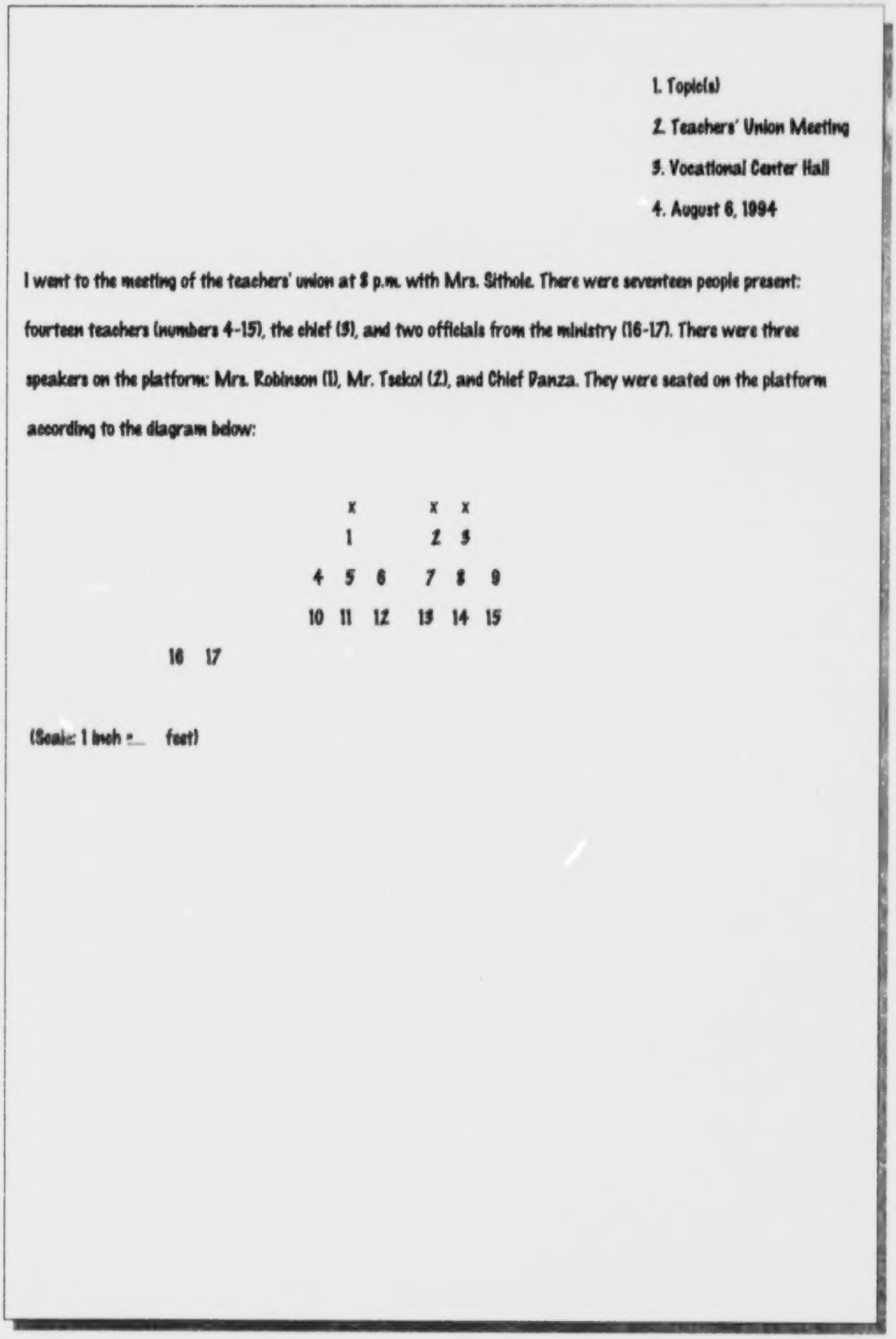
Circumstances and Background

Begin here with the material you wrote at the end of your hardbound notebook account. It will read something like the page shown in figure 15-1. Then write out the substance of your observation, as shown in Figure 15-2. Mark comments of your own, impressions, reminders to yourself, questions you want to pursue, and so on between slashes to separate them from the rest of the text, that is, what you actually saw and heard.

Back to our headings. Point 1, if you remember, is topics. Get the topics by scanning each sheet and deciding what subjects are covered. For your teachers' meeting the topics could be

1. Topics: circumstances, composition of meeting, teachers' concerns about confidentiality, methods of handling dissension.

Figure 15-1. First Page of Field Notes

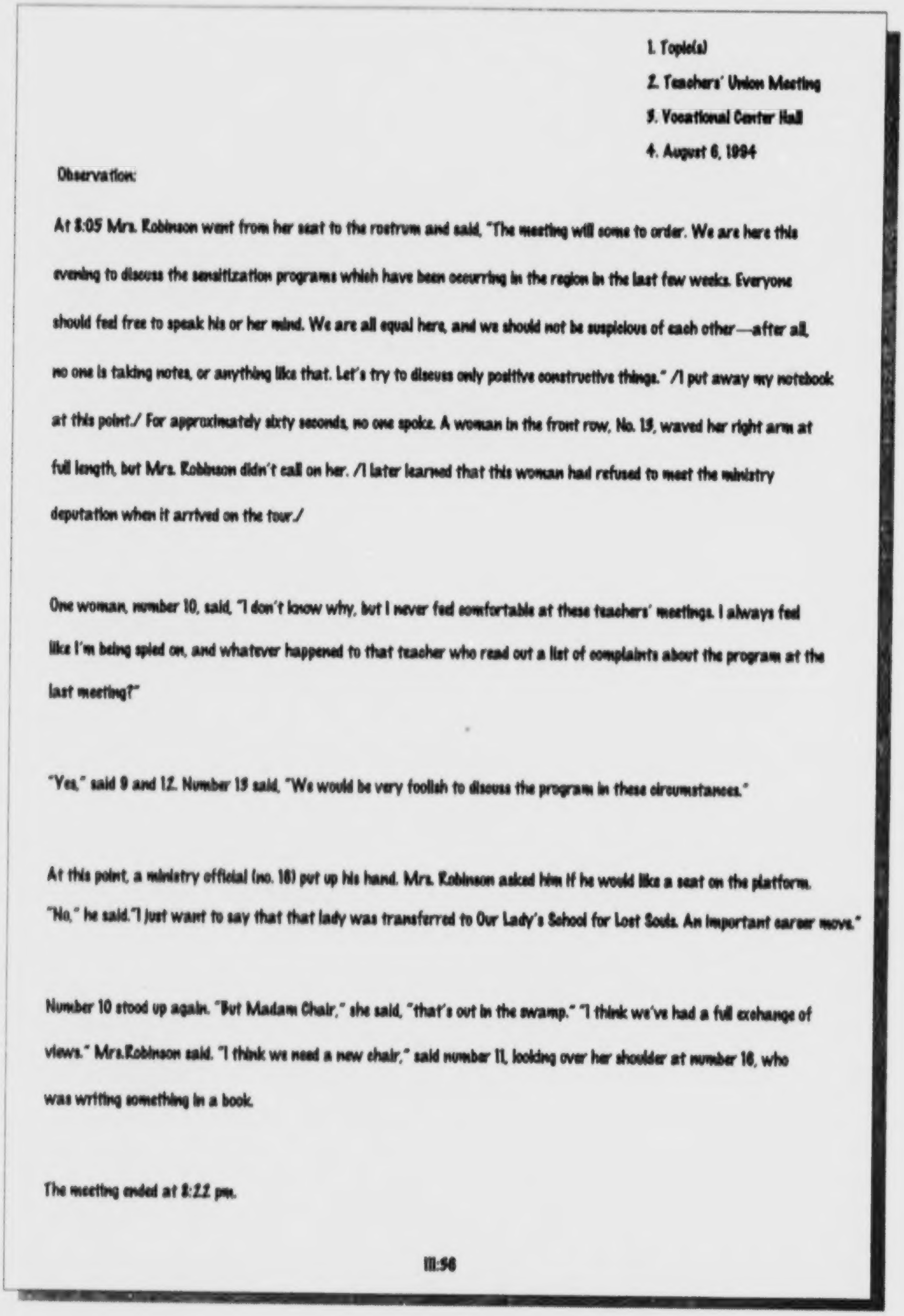


1. Topic(s)
2. Teachers' Union Meeting
3. Vocational Center Hall
4. August 6, 1994

I went to the meeting of the teachers' union at 8 p.m. with Mrs. Sithole. There were seventeen people present: fourteen teachers (numbers 4-15), the chief (3), and two officials from the ministry (16-17). There were three speakers on the platform: Mrs. Robinson (1), Mr. Tsekol (2), and Chief Danza. They were seated on the platform according to the diagram below:

(Scale: 1 inch = __ feet)

Figure 15-2. Notes on Teachers Meeting



1. Topic(s)
2. Teachers' Union Meeting
3. Vocational Center Hall
4. August 6, 1994

Observation:

At 8:05 Mrs. Robinson went from her seat to the rostrum and said, "The meeting will come to order. We are here this evening to discuss the sensitization programs which have been occurring in the region in the last few weeks. Everyone should feel free to speak his or her mind. We are all equal here, and we should not be suspicious of each other—after all, no one is taking notes, or anything like that. Let's try to discuss only positive constructive things." /I put away my notebook at this point./ For approximately sixty seconds, no one spoke. A woman in the front row, No. 13, waved her right arm at full length, but Mrs. Robinson didn't call on her. /I later learned that this woman had refused to meet the ministry deputation when it arrived on the tour./

One woman, number 10, said, "I don't know why, but I never feel comfortable at these teachers' meetings. I always feel like I'm being spied on, and whatever happened to that teacher who read out a list of complaints about the program at the last meeting?"

"Yes," said 9 and 12. Number 13 said, "We would be very foolish to discuss the program in these circumstances."

At this point, a ministry official (no. 18) put up his hand. Mrs. Robinson asked him if he would like a seat on the platform. "No," he said."I just want to say that that lady was transferred to Our Lady's School for Lost Souls. An important career move."

Number 10 stood up again. "But Madam Chair," she said, "that's out in the swamp." "I think we've had a full exchange of views." Mrs.Robinson said. "I think we need a new chair," said number 11, looking over her shoulder at number 18, who was writing something in a book.

The meeting ended at 8:22 pm.

III:56

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Your notes are likely to run for several pages, so proceed to the next page and do the same thing: fill in all the points and get the topics by reading that page. Your topics may remain the same for several pages or may change for each page. Nevertheless, put all four points on each page even if you are repeating the same points. The meeting we observed was a short one, but if it had continued, the next page's topics might include "replacement of chair," "vote to abandon tours," and "role of chief in peacemaking."

You may have one topic on the page, or three or four. You will probably have seen your topics somewhere before. If you are using your research outline to collect your information, your notes will reflect the points in your outline, and your topics will be similar, if not the same, as your research outline points. If they have very little relationship, you should try to figure out why. Maybe the points you selected in your research outline are really not important. Or maybe they are, but you are looking at the wrong things.

Notice that this approach is both deductive (using the research outline points to decide what to observe) and inductive (allowing other things to emerge, including them in the notes, and giving them topic headings).

After some practice, your rough note taking, writing organization, and memory will improve, and you can stop filling in all the details in your hardbound notebook, but, of course, you still have to record them on your half sheets.

Step 4 is to file the half sheets so that you have one complete account of the observation or interview and a file folder for each topic that appears in your notes. For this you will need the half sheets, a stapler or paper clips, and file folders.

When you have finished writing up your entire observation on the half sheets, let us imagine that you have filled up ten half sheets. If you made three carbons or copies of each, you now have forty sheets of paper: the ten originals or top copies and thirty carbons.

Take the ten originals or top copies and staple or clip them together, from page one to the last page. This means you now have one complete copy of the observation or interview if you ever need to read the whole thing in proper order from the beginning to end.

Now you have in front of you ten piles of carbon copy half sheets with three sheets in each pile. Take the first pile. Read the first topic listed at the top of the page, for example, in this set

1. Costs of tours; inappropriate personnel; benefits of tours

costs of tours comes first. Make a file folder called "costs of tours" and put the first sheet in the first pile into it. Now take the second sheet in the same pile. The second topic is "inappropriate personnel." File it under that heading. Take the third sheet and file it under the third topic, "benefits of tours." So far, all you have done is file copies of the same page.

Now move on to the second pile (page 2) and do the same, filing one copy under each of the topic headings listed on that page. If the page has as its topics

1. Disruption of work; benefits of tours; improving accountability

you do not have to make a new file folder for "benefits of tours" because it appeared as a topic before and you already have a folder. Your folder headings correspond to your topics, which in turn correspond to the points in your research outline or other organizational plan. Notice here that there is a definite bias: all the "benefits" are ending up in one folder, whereas each "disadvantage" appears to have a file of its own. Presumably this is because you are focusing on disadvantages. You are finding that the teachers and officials agree on the benefits, but it is the disadvantages that are in dispute. However, later you can always combine two or three folders into one or break one up into several.

What if you have only two topics on a page? You have three copies. File the first copy under the first topic, the second under the second, and throw the third one away. What if you have four topics and only three copies? If you see this happening often, start making four copies. If it happens occasionally, file the first three copies under the first three headings, and for the fourth topic put a note in the file folder for that topic saying "see August 6, 1994, page 6." When you need to look at that page, go back to your stapled or clipped pile of top copies, which you should keep all in one place, and read page 6 of August 6.

You can continue sentences and topics from one page to the next. It is easier if you do not continue just one line when the topic is going to change, but otherwise, simply type your notes without worrying about your filing system. If a topic continues on a new sheet, that new sheet will contain the topic in its heading, and therefore you will file the two sheets together. You can staple or clip them if you want to ensure that they stay together.

You can now see why you are using half sheets of paper: it limits the number of topics you can get on a page. If you used standard-sized paper, you might get eight or nine topics to a page, and be forced to make as many copies so that you could file a sheet on each.

You can use this recording method for interviews as well as observations, for diagrams and maps, and for material from books and documents. For books use the headings this way:

1. Topic(s)
2. Author's full name, book title, publisher and place of publication, date of publication
3. Location of the work (this is useful for documents, especially if you are using sources scattered among a number of agencies and offices and wish to find them again)
4. Date (of your note taking).

Write your notes from books or records or draw your maps and diagrams directly on the half sheets. You can also photocopy material, for instance, paragraphs from books, and paste them on the half sheets. This way, any of your information that is not recorded on questionnaires or other standardized forms will appear on these half sheets. When you are finished with your research, you will have one pile of top copies of all your notes from earliest to most recent. You will also have a set of file folders containing your carbon copies. They will correspond to the topics in your research outline or to whatever organizational scheme you are using. If you wish you can number them to match the points in your outline.

From time to time you can go over your outline points or whatever plan you are using to organize your research and check each corresponding file to see that you are getting the information that you need. You may, of course, have to add or cut points in your outline or plan, and your file folders will reflect this. You may also have to recategorize your material as you gain more understanding.

Suppose you are doing a piece of descriptive research. You just want to know what the teacher's concerns about the sensitization program are and the ministry's concerns about the teachers' participation. When you finish your research and want to write it up, look at your research outline to see if you can use it as the outline for your report. Often, you can. Sometimes you have to re-order the points. In our outline for

Points of Disagreement (I) between Teachers' Union Members (II) and
Ministry Officials (III) in X District (IV)

if you had happened to place X District in the middle or near the end of the outline, you now might want to make it first, because you will probably want to describe the location of the institution near the beginning of your report. Then you might want to say something about the teachers' union members (II), such as who they are, and the ministry officials (III) before moving on to the points of disagreement (I), which is the substance of your research.

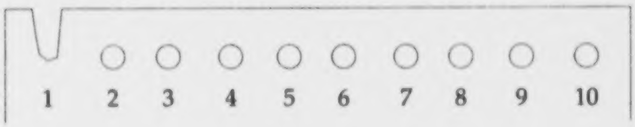
When you get the outline points in an order suitable for your report, line up your file folders in the same order. Take your first points, read the corresponding folder, analyze or summarize the material in it, and write it up. Sometimes you may have to group points together, but the procedure is the same. Remember, however, that you need two outlines. One is a guide to the information you need to collect, and one is a plan for writing your report. If one serves for the other, fine, but when you are planning your research at the beginning, never work out your research outline as if it were going to be the outline for your report. The research outline is a plan for collecting information. With any luck, the outline for your report will be a bit more interesting.

If you are doing anything more than very simple descriptive research, you will have to perform more analytical operations than this, such as finding patterns and relationships (see chapter 16). No matter what you do, you need your information in some organized form like this.

Other Types of Written Recording Techniques

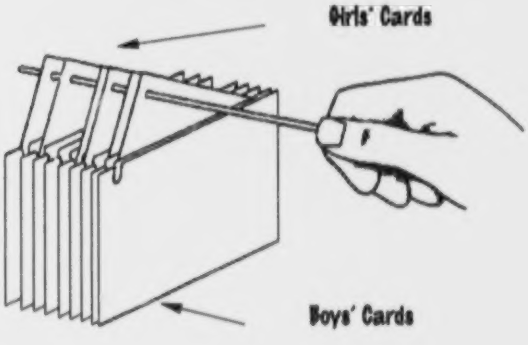
Other note taking procedures are available, but most are variations of the one just described. For example, you can use punched cards. Get or make a pack of cards with holes punched around their edges. Number each card, from one on. Record your information. Put items 2, 3, and 4 in the upper right-hand corner, but not the topics. Assign a hole to each topic. If that topic appears on your note card, open the hole out with a scissors or a special punch (figure 15-3). Open the holes for any other topics that appear on the page. When you want to retrieve a particular topic, line up all the cards, run a knitting needle or other thin rod through the hole assigned to that topic, and all the cards containing information on that will fall off (figure 15-4). You can get at subcategories as well. Let us say that first you want all the cards with information on girls who left school at Grade 3. You assigned hole 8 to that topic. These cards fall off the needle. Then you want to look at which of those girls is now taking a skills course. You have assigned hole 9 to that topic. Run the needle through again, and you will now have all girls who left school at Grade 3 who are taking skills courses. (The reason you have numbered the cards, incidentally, is so that you can reassemble them into chronological order again. If you do not want to keep doing that, make one carbon copy of each note and keep the carbons in order in a box.)

Figure 15-3. Punched Cards with Hole 1 Opened



Source: Mitton (1982, p. 83).

Figure 15-4. Selecting Cards



Source: Mitton (1982, p. 84).

Other written recording techniques are available for kinship (**genealogical charts,** see Schusky 1983), and body movements (**kinesic notation,** see Birdwhistell 1970). You are unlikely to need these, but if you do, know they exist so you do not have to reinvent them. For other recording techniques, such as grids, classroom observation forms, and matrices, leaf through this book, particularly chapters 12, 15, and 16, which show various display forms. You can use many of these for recording.

TAPE RECORDING

Tape recording is useful if getting the exact words, tones, or music is important; if writing would disturb the flow of conversation; or if you have to be free to do something else during the interview or event. You could also tape record yourself giving a running account of the event.

In these cases, tape recording is simply a substitute for the hardbound notebook. The second stage, putting the material on half sheets, is still necessary. Here are some points to bear in mind if you tape record:

- Many people resent or are frightened by tape recording and, of course, secret tape recording represents a serious ethical breach. Never use a tape recorder without announcing its presence and seeking permission to use it. Keep your tapes confidential, just as you would your written notes. Try both written recording and tape recording to see how each influences the presentation and availability of material.
- Tape recording in itself does not produce certain types of information that may be important to your study: "kinesics," such as body movements and gestures; facial expressions; and the physical characteristics of people and settings. (Written notes do not produce facsimiles of sound, but the caution is necessary, because sometimes technical aids give one a false security of having recorded everything.) Therefore, at the end of the tape recording you must either tape or write the information called for in step 2: circumstances, physical descriptions, background, and influencing factors, plus the points mentioned above.
- You must transcribe and edit tapes immediately after you have made them. Your research time may be very limited. Perhaps you have had to travel some distance and want to spend all your precious time collecting and wait until you get home to transcribe the tapes. This is usually a serious mistake, because by that time you will have forgotten all the details called for in point 2. You may think that you will not. How could anyone forget such clear impressions? The clear impressions tend to run together, however, and vague recollections will not be good enough in your notes.
- You could include all the information called for in points 2 and 3 by reciting it into the tape recorder at the end of the interview; however, letting untranscribed tapes pile up can lead to other problems. If you do not have the information on half sheets, classified by topics, it can be difficult to tell how you are progressing, whether you have enough on a particular topic, whether you are unintentionally skipping research points. The sheer volume of work can also present a formidable obstacle when you finally do begin to transcribe.

VIDEO RECORDING

Filming used to be available mainly to highly trained professionals who could afford expensive, rather unwieldy equipment. The availability of camcorders has changed that somewhat. The newer equipment is also less intrusive. The need in the past for lights, big cameras, a crew and microphones often produced rather artificial scenes that terrified people.

This discussion is limited to using video as a method of recording research information, not as a visual way of presenting results, conveying meaning, and so on. The principles are the same, however. You still have to get the information into manageable form, and you have to provide information about what is happening. One way of doing the latter, if the situation allows it, is to speak while filming or have someone else explain what is happening as you film. If the purpose of your research is to record the intricacies of a process, whether it be children interacting or someone making something, making a video is a good method, particularly if you can show it to other people for interpretation (see Collier and Collier 1986; Heider 1976; Hockings 1975 on the use of videotape in research).

None of the above should deter anyone whose research requires accurate recording of sound or video. It is intended as a cautionary note for those who think tape recording or video offers the easy way out.

CONCLUSION

All these methods require an investment of time and patience, but are well worth it in the end. Whatever method you choose, the essential thing is that you use it regularly and keep up-to-date. For other systems for doing field notes, including the question of whether they are well worth it, see Burgess (1984). Bernard (1994) also offers an alternative system. The only good system is one that works for you, otherwise, you won't keep it up.

FURTHER READINGS TO HELP YOU

Bernard, H. Russell. 1994. *Research Methods in Cultural Anthropology.* Newbury Park, California: Sage.

Birdwhistell, Ray L. 1970. *Kinesics and Context: Essays on Body Motion Communication.* Philadelphia: University of Pennsylvania Press.

Burgess, Robert G. 1984. *In the Field: An Introduction to Field Research.* London; Boston; Sydney: George Allen and Unwin.

Collier, John, Jr., and Malcolm Collier, 1986. *Visual Anthropology: Photography as a Research Method.* Albuquerque: University of New Mexico Press.

Hartnett, Teresa, and Ward Heneveld. 1993. *Statistical Indicators of Female Participation in Sub-Saharan Africa.* Technical Note No. 7. Washington, D.C.: World Bank, Africa Technical Department, Human Resources Division.

Heider, Karl G. 1976. *Ethnographic Film.* Austin, Texas: University of Texas Press.

Hockings, Paul, ed. 1975. *Principles of Visual Anthropology.* Chicago: Aldine.

Miles, Mathew B., and A. Michael Huberman. 1994. *Qualitative Data Analysis,* 2nd ed. Thousand Oaks, California: Sage.

Mitton, Roger. 1982 *Practical Research in Distance Teaching.* London: International Extension College.

Sanjek, Roger, ed. 1990. *Fieldnotes: The Makings of Anthropology.* Ithaca, New York: Cornell University Press.

Schusky, Ernest L. 1983. *Manual for Kinship Analysis,* 2nd ed. New York: Holt, Rinehart and Winston.

Part IV

Working with Your Results

...... 16 ......

Qualitative Analysis

summary

*Analysis of qualitative data involves getting the information (**collecting**), boiling it down (**reducing**), organizing it in various ways to help you to see patterns and relationships (**displaying**), deciding what you have got (**drawing conclusions**), and satisfying yourself and others that you have found what you think you have (**verifying**).*

*The entire process involves **repetitive loops:** what you learn in one stage may send you on to the next stage or back to an earlier stage.*

Now we have reached step 12 (box 3-1): analyzing the results. This chapter looks at how to analyze qualitative data, while the next one looks at quantitative data. At the end of the next chapter you will find a discussion of how you might combine the strengths of both to get the best of both worlds.

Words and numbers are two different kinds of symbolic systems, and the techniques for making sense of them also differ. Techniques for analyzing data in numerical or quantitative form are highly developed, as the introduction to the subject in chapter 17 will show. The main problems in using them are (a) understanding them, (b) collecting your material in such a way that it is suitable for such analysis, and (c) choosing the correct techniques. These are not trivial problems, as anyone who has used quantitative techniques will tell you.

Until recently, however, the analysis of material in words—qualitative data—seemed even more difficult. Your interviews, observations, and quotes might be extremely moving and very telling, but telling what? How would you know if your material was significant? How could you identify patterns? You think what you have is valid, but will anyone else? In short, is human thinking good enough as a mode of analysis?

All analysis, of course, including quantitative analysis, is founded on human thinking. Sometimes when we see something like this

$$\Sigma = \frac{\Sigma - 1}{X^2}$$

we think it came from the Almighty. We forget that a human developed it.[1]

---

[1] Actually I developed it just now, and it doesn't mean anything useful.

In quantitative analysis the thought processes are certainly more formalized and codified than in qualitative analysis. Much of the work has already been done by statisticians. You just apply their procedures. What rigorous procedures can you apply to qualitative materials? Or is it all an art? And is rigor what is wanted in qualitative analysis? While both positivists and phenomenologists use qualitative data, many phenomenologists think that establishing rigorous procedures is not a worthy enterprise, because reality is not like a machine. It consists of multiple, changing perspectives. What "laws" or "rules" could possibly be applied to this kind of information?

Three recent works on educational research are particularly interesting in this context. Each deals with these issues, largely in relation to educational evaluation, and each is shaped by a different philosophical approach to the debate we summarized in chapter 2: the nature of reality, how to find out about it, and how to analyze it. Miles and Huberman (1994) state clearly that they lean toward positivism, Guba and Lincoln (1989) take a phenomenological approach, and Patton (1990) takes both views to come up with "a paradigm of choices." All are worth reading, as are the works of the many sociologists and anthropologists who have been wrestling with these kinds of problems for years, such as Bernard (1994), Geertz (1973, 1983), Glaser and Strauss (1967), Pelto and Pelto (1978), and Wolcott (1994).

WAYS TO LOOK AT YOUR MATERIAL

In chapter 2 we looked at ways of approaching material. We return to two of these now as we try to make sense of our information.

Working from the Top Down: Deductive Approaches

The human brain appears to be programmed to put order on chaos. The chaos in this case is your material. Some kinds of order seem to be universal (see Berlin, Kay and Merrifield 1985, for example, for color orders), but others are culturally established. In addition, material has many kinds of patterns. Do not assume that if a pattern or theme springs out of your material that "this is it." It's even more important to remember this if you are studying people who are culturally different from yourself—your interpretation and theirs may be quite different, although both may be valid.

In deductive research, the data have already been molded. In addition to outlining a problem or issue for yourself, you determined exactly what you wanted to know about it, thereby giving you the categories of information you collected—the questions in your survey or the treatments in your experiment. You ignored material that did not fall into these categories, for example, in chapter 4, when you were looking at girls in X District, you looked at

A. General characteristics

1. Age
2. Area of residence
3. Ethnic or tribal group
4. Religion

(etc.)

If you remember, you did not look at the girls' height. We decided that it was not important, so we did not collect information on it. But maybe height turns out to be important. Let us say that bigger girls are thought to be mature enough to do heavy work in the gardens, so they do not go to school. One of the reasons girls give for leaving school when you interview them is because they are "needed to work at home." You will not know if these are the bigger girls because you did not ask. So this information will not spring out at you, because it is not there.

Of course, you could go back and find out whether these girls are bigger. Suppose you talk to a few of them and notice in passing that they are all looking down on you. This is a serendipitous or accidental discovery that you can then pursue. (This might sound a bit slipshod to you after all the work you put into your research outline, but some of the most important scientific discoveries of the past two centuries have been serendipitous. The story of how Alexander Fleming discovered antibiotics is a famous example, but too disgusting to mention here.[2])

Working from the Bottom Up: Inductive Approaches

In inductive analysis you allow the categories or patterns to unfold or emerge. Instead of getting a theory, converting it into something you can study, selecting the variables to study, and collecting the information on them—and only them—you start out with a more open-ended approach, for example, what kinds of things help people to send their girls to school?

The researcher can detect patterns in inductive analysis, or they can have been built in by the people you were working with. Remember the types of girls that the students identified in the emic interview in chapter 4—"loose," "ordinary," "Mandinkas," and so on? Or the very rich, rich, in between, and poor in chapter 14? Or the criteria for evaluating options that the villagers chose in a matrix, also in chapter 14?

Some advocates of inductive analysis talk of letting the data speak for itself. This is not possible. The data are constantly passing through ordering processes that the human brain puts on them, from the moment the first question is formed in your head. (Of course, the results of the ordering may differ, depending on the question you are asking, the theoretical perspective you take, the techniques you used, your cultural background, and the material you have to work with.) Nonetheless, you can try to give the material a chance to say something to you.

Here is one final example of the difference between the two approaches. In chapter 12 we mentioned a study by Whiting and Edwards in which they observed the actions of 137 boys and girls to test stereotypes about boys' behavior and girls' behavior, such as "boys are more dominant" and "girls are more nurturant." Whiting and Edwards defined what they meant by words like "dominance" and "nurturance" before the study started. Only those kinds of behaviors were observed. At the end, they simply had to count them. That is a deductive approach. Another possibility would have been to watch the children, record everything they did (probably filming would have been the only practical way), and then figure out what was there. That is induction.

Bear in mind that you can use an inductive approach to data collection—informal interviews, participant observation, cards sorts, and so on—and still analyze the material deductively, particularly when you are trying to pull the results of the whole lot together.

Taking a deductive approach to data collection and then using an inductive mode of analysis is more difficult. Of course things can emerge or unfold, but there is not as much scope for this to happen because you have so carefully restricted the possibilities when you were collecting the material. And one of the reasons you were using a deductive approach to begin with was that you had a clear-cut idea about what was important. At this point you probably don't want to start rooting around for new things to spring out at you, even if they could.

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[2] However, it's all right here. Once, when he had a cold, Fleming decided to study his own nasal secretions. Many people probably do this when they have time on their hands. However, in Fleming's case, a teardrop happened to fall onto the laboratory slide containing the secretions. He found that a substance in the teardrop, although harmless to human tissue, destroyed the bacteria. But serendipity is no excuse for sloppy research planning. As Pasteur, another serendip, said: "Chance favors only the prepared mind." Fleming's training prepared him to understand what he had found (Roberts 1989, pp. 65, 160).

STAGES OF DATA ANALYSIS

Most analysis of qualitative data is a tacking back and forth between deduction and induction.

The following stages of data analysis are adapted from Miles and Huberman (1994). The order is slightly different for purposes of clarity in a chapter as short as this. You should read their work, and some of the others listed at the end of this chapter, to get a fuller picture. These stages are

1. **Data collection** of material in words, as discussed in chapters 11–13
2. **Data reduction**, structuring, organizing, and streamlining the material
3. **Looking for groupings and relationships**, trying to figure out what you have
4. **Using visual data displays** to clarify groupings and relationships
5. **Drawing conclusions**, pulling it together, and verifying, or satisfying yourself (and others) that your findings are valid.

In other words, collecting your information, boiling it down, laying it out in various ways to help you figure out what you've got deciding what you've got, and checking it. Remember, the aim is to find meaningful groupings and patterns of relationships (if they are there, of course!).

The process outlined below does not form a one-way sequence. At each stage you learn something that may send you back to a previous stage or stages. Think of it as a board game: at any moment you may be sent back to the beginning. Figure 16-1 shows the luck of the game.

Stage 1: Collecting the Data

At this point, you may feel you have finished collecting your data, but remember that the research process is a *dynamic system* involving repetitive loops. As you are sorting out your material and seeking patterns, themes, and categories, you may find that you need to collect more information to test your ideas. Perhaps your research suggests that poverty is an important factor in whether or not children attend school: poor people do not send as many of their children to school as people who are better off. But what about poor people who do? How do they manage to do so? How and why are they using their limited resources to educate their children? The world is full of poor people. If this particular group can tell you something about how they manage, it is worth finding out. Back to data collection.

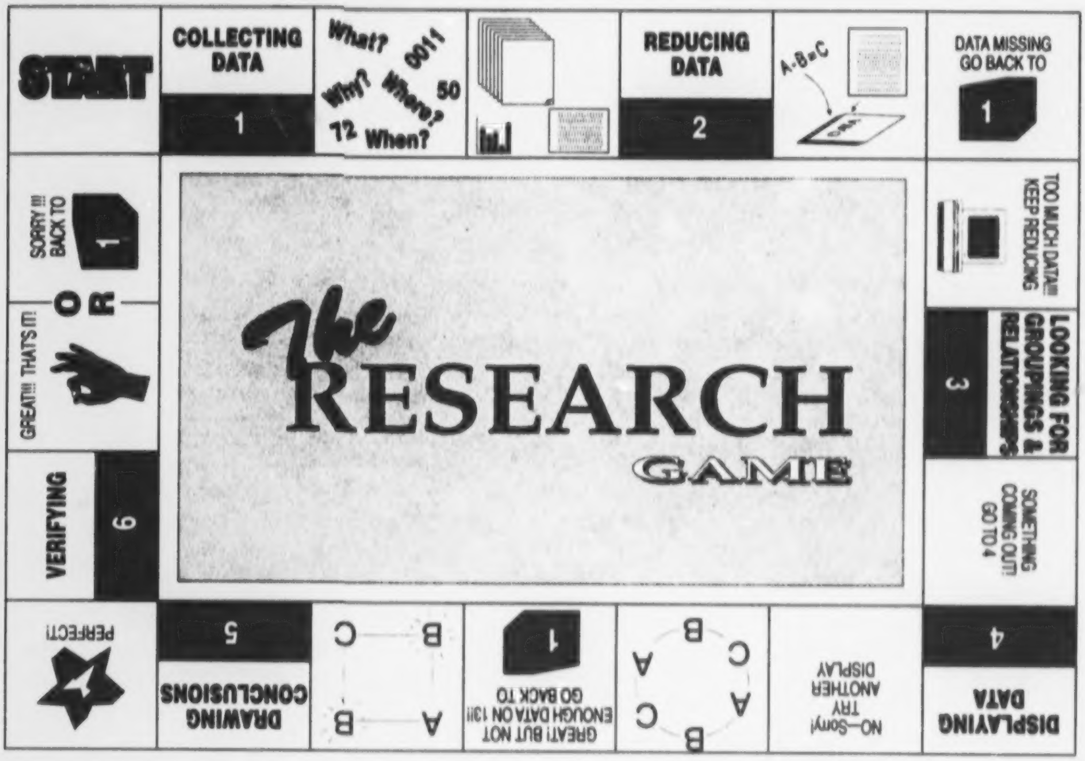
If you collect material at a higher, or more general level, you cannot convert it to a more detailed or specific level. For example, if you asked: "How do you feel about the school system" and 70 percent of people say they are happy with it, you cannot convert this to more specific information, and conclude that they are happy because the school got new books or the principal is friendly. If you asked people if they were young, middle-aged, or old, you cannot then convert this information to 0–30, 31–60, 61–90.

Stage 2: Reducing the Data

In quantitative analysis you reduce the material by using numbers. Remember the hordes of people who told you on a survey that they would send their daughters to school if they could afford the fees? They now become "75 percent of the respondents." Very neat and concise.

You can also reduce qualitative data using numbers. You can observe girls and boys interacting in class projects all over your region and say: "In 45 percent of the instances, boys chose the subject of the project, in 20 percent girls did, and in 35 percent they worked together to choose the subject."

Figure 16-1. The Research Process as a Board Game



Other ways of reducing material are also available. In fact, you have been reducing your data all along: you decided to focus on some things and exclude other things; when you collected material, you decided what was relevant and what was not; and you recorded only some things. From the whole world of acts, behaviors, processes, events, and people, you looked at and took instances of some and not others.

You can summarize or group material. In emic interviews you can look for recurring concepts, labels, and words that seem to keep cropping up in interviews. Perhaps these are shared concepts, and the bases for groupings. You can also go through categories in your notes, select some and set others aside (meaning you choose to look at all the information on a category, and not on another—not that you look at what supports your idea and ignore what contradicts it). To do this you have to have some kind of conceptual scheme; you have to remember what you are studying. Or you can let the patterns leap out at you, if you are very lucky, and concentrate on those. As you do this, you might find some holes in your material that were not obvious before. This will send you back to data collection.

Stage 3: Looking for Groupings and Relationships

This stage and the next, using visual data displays, have to be considered together. Saying which of these comes first is difficult, because in reality they work together. At a simple level, you might say that in a deductive approach you conceive the display and then see if the material fits. In an inductive approach you would find the pattern and then use the display to illustrate it. The aim in each case, however, is to group the material in a meaningful way. You can use such devices as grids, matrices, taxonomies, maps, flow charts, causal maps, or networks to help you try out various groupings and relationships to see what you have. You can also use them after you have developed some groupings to refine them and see patterns more clearly. And, of course, you can use data displays to discover what is still missing, which sends you back, as you might have guessed, to more data collection. You will probably go back and forth, trying and rejecting, until you find something that makes sense to you.

How can you figure out what you have got? This section presents a number of ways adapted from the sources mentioned earlier, especially Miles and Huberman (1994).

Scanning the Material

You should be scanning your material all along to help you come up with refinements, new questions, and so on. Now that you are near the end, you should try to take a fresh perspective. Think back on your material. If you had to tell someone on a bus three or four things that you seem to have learned from your material, what would they be? If you cannot think of anything, put it all aside for a bit, or get a friend to grill you: "What did you find?" "Do you mean you spent all that time and found nothing?" "At least tell me one idea you got." "What led you to get that idea?" "Would you say that's generally true for your research?" "What are the exceptions?" "Why?" and so on. ("Hard" scientists reading this should not laugh. Remember we social scientists now know about Alexander Fleming, as well as about Newton, Nobel, Friedel and Crafts, and many of your other heroes. What we are doing here is far more orderly.)

The following sections discuss some more specific approaches.

Look for Patterns and Themes

Do any things seem to go together? Do any things seem rarely or never to be associated? What kinds of exceptions are there to these "rules?" Does that tell you anything? For example, you did some case studies on girls from poor families who managed to get a secondary education and poor girls who did not. All the girls had good marks. What does each group have in common? (All the secondary school girls had two living parents.) What seems never to be found? (None got pregnant.) What do most of the girls have in common? (Most come from small families.) What are the exceptions? (About a quarter of the girls come from large families.) What do they have in common that is different from the small-family secondary school girls, on the one hand, and the nonsecondary school girls, on the other? And so on.

You begin to think you see a pattern. Now look for examples that do not fit into your pattern. What about girls who have two living parents, did not get pregnant, come from small families, and did not go to secondary school? What happened? You find that these girls lived too far from a school. Now look at the secondary-educated group. Did any live far from a school? Some did, but they had a relative who lived near the school. Now you have another common element: the secondary educated girls either lived near a school or had a relative who did.

Clustering

Clustering is another name for sorting: what things go together, and why? What name can you give them that shows why they go together?

Remember the emic interview in chapter 4. Students were telling the interviewer what kinds of girls were in their class. They were clustering or grouping the girls into "loose girls," "ordinary girls," and so on. In chapter 11 another emic interview clustered skills center courses into categories. Card sorts and triads

accomplish the same thing. You can also get categories from observing (the ways in which teachers respond to students' answers); from community interviews (how elders get the rest of the community to share their viewpoint); from story telling (kinds of strategies women use to get their husbands to agree to something); or from any of the techniques described in chapters 11, 12, and 13, all of which can be used to cluster people, behaviors, events, and processes.

For example, you study how villages get skills centers through nongovernmental organizations (NGOs). A lot of things happen, many people are involved. What are the processes a village goes through? Can you cluster what you found under a set of headings, such as "making a case," "showing need," "fitting the NGO's brief," "having the right representative," "knowing agency language," "having pull," "timing it correctly," and so on?

Or you study six secondary schools, all of similar academic standing, all teaching the same courses. Girls from three of the schools go on to a wide variety of third-level courses, and three send their girls on to a very restricted range of third-level subjects. You studied many possible reasons, but now your research indicates that the teachers' interactions with the girls are very important. In the schools where the girls go on to a wide variety of courses, the teachers behave in certain ways that are not as common in the other schools. You have watched a lot of instances of teacher-pupil interaction—hundreds maybe—and now you are grouping them into clusters, such as "facilitating," "obstructing," "ignoring," and "rewarding."

Having said so much about grouping you may find that sometimes you have overgrouped. Something you thought was one category is actually three. You have a big lump of a category called "parental participation in school activities." Maybe you should look more closely: perhaps you have three kinds of participants: workers, drones, and queen bees. If you are looking at teachers as "facilitating," "obstructing," and so on, you might want to look at "facilitating" more clearly and break it up into "rewarding," "providing information," "acting as a role model." Maybe each has a different effect.

USING METAPHORS, ANALOGIES, OR MODELS

In chapter 2, we referred to the view that positivists hold about nature: nature is a giant clock whose pieces can be taken apart and studied separately. That is a metaphor. "Mr. Mwanza is the Romeo of the department" is another. In both examples, the similarities between two unrelated things are highlighted to give a better understanding, while the differences are ignored. Romeo, for example, is a dead, fictional, Italian teenager. Mr. Mwanza is not.

Analogies are similar. Something is said to be like something else to highlight some essential feature that both share, while ignoring the differences. "Being in this school at recess is like putting your head in a milling machine" emphasizes the noise, pain, and disruption that would be common to both. "When the inspector visits, the principal is like a chicken with its head cut off." But you can have more insightful analogies. "This school runs like clockwork" emphasizes not only timeliness, but regularity, predictability, and efficiency. "The teachers meeting is like a battlefield" emphasizes hostility, lines drawn, weaponry, and winners and losers.

Models are explanations of how something works borrowed from a different sphere. At a simple level, you might use a model of a factory to illustrate inputs and outputs in a school system; or you might compare it to a garden with its planting, nurturing, and harvesting; or to a prison, envoking containment, restrictions, reshaping, and punishment. Models highlight the parts of the system that you think are the most important. There are some quite sophisticated modeling systems in the social sciences, some borrowed from organizational theory, information systems, cybernetics, and chaos theory, among others.

Metaphors, analogies, and models are like servants: don't let them take over and don't push them too far.

COUNTING

You are allowed to count in qualitative research. Ignore the comments of researchers who claim you are only doing qualitative research because you can't count (Sechrest 1992, p. 5)

Anything, no matter how vague it may seem, can be collected in numbers if you set up the questions or the categories of observations in ways that allow it, for example, you can convert, the following observation into numbers in a variety of ways.

The teacher asked Lalia, "How much is four times two?"

"Seven," said Lalia.

"How much is four times two, Ousman?" she asked.

"Eight," said Ousman.

She asked Mbengeh "How much is four times three?"

"Twelvee," said Mbengeh.

"How many times do I have to tell you, it's twelve, not twelvee. You don't say the "e" on the end. Do you say fivee? No, you don't. You are a silly girl. Go wash the blackboard. How much is four times nine, Lamin?"

"Thirty-four," said Lamin.

"Nearly right," said the teacher. "Think a little more. It's the same as six times six."

"Thirty-six" said Lamin.

"Excellent" said the teacher. "Karafa, how much is four times seven?"

"Twenty-eight" said Karafa.

"Very good" said the teacher, "Let's clap for Karafa," children.

The children applauded.

Table 16-1 shows one way to collect the results of these interchanges in numbers.

Table 16-1. Teachers' Responses to Students' Answers

Response	*Girls*	*Boys*
Ignoring correct answer	1	1
Rewarding correct answer		1
Constructively helping with incorrect answer		1
Punishing incorrect answer	1	

Benjamin White (1984) used a nominal scale to present quantitative data that he had collected in qualitative form by interviewing people on husbands' and wives' roles in household decisionmaking (table 16-2).

FINDING RELATIONSHIPS

How does what you have found go together? Box 16-1 sets out some possibilities.

Things may simply go together. It is not necessarily the case that one causes the other. If you look back at chapter 5, you will see the requirements for cause and effect: the two things have to go together, the cause

Table 16-2. Quantitative Presentation of Qualitative Data

Nature of decision	*Wife alone*	*Wife dominant*	*Equal joint decision*	*Husband dominant*	*Husband alone*
Production input purchase	0	18	0	54	28
Hired labor recruitment	0	14	11	44	11
Food budget	67	33	0	0	0
Clothing purchase	45	45	0	0	10
Health care	0	33	0	33	33
Social/ceremonial expenditure	0	44	11	44	0
Number of children	0	11	67	22	0

Source: Benjamin White (1984).

Box 16-1. Indicating How Things Go Together

1. A+, B+ (both are high or both are low at the same time)
2. A+, B– (A is high while B is low, or vice versa)
3. $A^{\uparrow}$,$B^{\uparrow}$ (A has increased and B has increased)
4. $A^{\uparrow}$, $B^{\downarrow}$ (A has increased and B has decreased)
5. $A^{\uparrow}$, then $B^{\uparrow}$ (A increased first, then B increased)
6. $A^{\uparrow}$, then $B^{\uparrow}$; then $A^{\uparrow}$ (A increased, then B increased, then A increased some more)

Source: Miles and Huberman (1994, p. 258). Reprinted with permission of the Institute of Development Studies.

has to occur before the effect, and the relationship cannot be spurious (something else causing both of them). In social research, determining which comes first can be difficult, because the process may have been going on for a long time, and you are seeing the effect in one sequence and the cause in the next, essentially in the wrong order. "The culture of poverty" was a popular sociological topic in the 1960s and 1970s. Does a certain kind of "culture" produce poverty, or does poverty lead to certain ways of living? In an ongoing process, it can be difficult to tell, and people tend to make their interpretations based more on an ideological basis than on an experimental one.

Almost always when you find a relationship in qualitative research, you have to look back at your material (and probably, as you may have guessed, go back to data collection), to see if the pattern holds. Look for negative instances; where the relationship does not hold, why not? Look for rival explanations; maybe B is causing A, not the other way around. Maybe a third thing is causing both. Maybe they are not connected in any way at all except in your notes.

You can perform what anthropologist H. Russell Bernard (1994, pp. 71–72) calls "thought experiments" as well, meaning "what if?" questions. What if you left the school as it is, and changed the dynamic headmistress? Would it still work? Have you got any other research material that might tell you? What if you could lower the school fees? Would that be enough? Do you know of any districts like yours where that happened?

CONSTRUCTING A PICTURE

Educational researchers Guba and Lincoln (1989) have developed a phenomenological approach called **constructivism**, in which different people's or different groups' "claims, concerns, and issues" emerge and are resolved through negotiation. In constructivism, you are not performing operations on the data, such as grouping or clustering. Instead you are trying to build up or construct a picture, inductively, just as you would expect phenomenologists to do. This approach shapes the entire research process from the very beginning, not just the analysis.

A constructivist approach involves the following. First, a contract is developed with the client or sponsor, such as a school board that is concerned with parental dissatisfaction with a new curriculum and teachers' worries about how to implement it. What is to be evaluated, how, and the purpose of the evaluation are clarified and undertakings are sought that the client will adhere to and accept the process, which involves sharing power, and willingness to change, if necessary. Indeed, all the parties involved must agree to this if the process is to be successful. The evaluation team is trained and organizational arrangements made. Stakeholders (agents, beneficiaries, and victims) are then identified. Evaluators try to understand the claims, concerns, and issues of each group by interviewing people, and then discovering variations on those views by asking to be referred to others whose ideas might differ. Once no new information emerges, this round, or "circle" is complete, and the results are compared with other sources such as literature, observation, the views of the other stakeholder groups that are participating, and the evaluator. The results of these are put to the groups, and some claims, concerns, and issues are resolved and set aside. For example, parents concerned that their girls were attending biology classes with boys might discover that teachers were already planning to establish single-sex classes. Any unresolved items are prioritized, and more research is done on these. The competing items are presented to each of the groups, along with useful information. Then each group chooses a representative to form a new circle and negotiate the unresolved items, shape a joint construction, and decide upon action. When the process has gone as far as it feasibly can, case reports and stakeholder group reports are prepared. Finally, because unresolved items almost always remain and situations change constantly, the entire process can be recycled. If you are interested in this approach, look at Guba and Lincoln's (1989) work to understand their full line of argument and to get more information on how to proceed.

Researchers have used this method in a number of African projects, particularly by the U.S. Agency for International Development. It is time consuming, and getting people to reach consensus is not easy.

Stage 4: Using Visual Data Displays

According to sociologists Schlecty and Nobel (1982, quoted in Patton 1990), the task of the researcher is

- Making the obvious obvious
- Making the obvious dubious
- Making the hidden obvious

and, we might add for thick-headed people who refuse to see the light, making the dubious obvious.

Data displays help to do that. A visual display does not refer just to making a nice chart to illustrate your findings to others. Here it is an analytical tool, something that helps *you* to see patterns and relationships. That is why it might precede stage 3, be used in conjunction with it, or follow it.

In chapter 14 we used some data displays, including a map and several matrices. We will look at these first. Remember, local people can make these visual displays too during the research.

MAPS

You can use maps to represent anything that has a spatial dimension. In chapter 14, a village mapped its households, showing who was going to school and who was not. Here are some other things that can be mapped:

- Areas showing location of ethnic groups; social classes; areas used by men, by women, and by everyone.
- Change over time by doing two or more maps of the same place.
- Use of a place at various seasons, or by time of day: for example, are girls prevented from attending extra tuition sessions at night because they cannot go to certain areas?
- Areas in the school or general school area where girls' security is most at risk.
- How far boys are permitted to travel as opposed to girls. Maybe building a school in a particular place will rule out girls attending.
- Placement of people at meetings: does it prevent some people from participating? At one community meeting in The Gambia, girls were well-placed to participate because the researchers had seen to it. Then the older people sent them off to get benches for visitors. When they returned, they found themselves placed in such a way that participation was difficult.

These are a few examples. You can probably think of many other possibilities.

People can help you create these maps, or you can draw them after collecting your information and show them to people for feedback and refinement. People in most places like the idea of maps (unless they are dealing with a controversial subject like contested land boundaries), so maps can be used to look at things in a new way.

You can then use the map to try to figure out relationship. Do women go into men's areas only to perform domestic services? Are some areas of the classroom used only by the teacher, so it is a privilege for students to use them (look at figure 3-1 in chapter 3 and see one of the ways a teacher lets a student be a "pet" by touching the "drapes" (curtains), which is usually the teacher's prerogative).

MATRICES

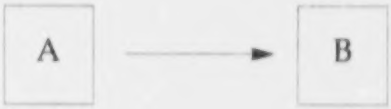
Matrices can help people to see relationships, because information "intersects." Matrices have categories going down the left axis and across the top. These can be the same categories going both ways (see the grid approach in chapter 4, for example) or different categories, as in the matrices in chapter 14.

FLOW CHARTS

Flow charts show a sequence of events, processes, or behaviors. What happens first? Then what? And so on. A flow chart at the end of chapter 1 shows how to use the chapters.

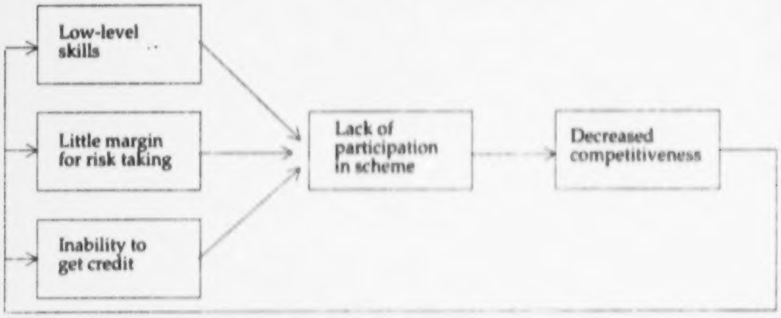
Causal maps are a type of flow chart. Figure 1-1 in chapter 1 is a causal map that shows interrelationships among girls' primary education, culture, and social change. Causal maps can be very simple, such as

A causes B



or very detailed, with dozens of variables and arrows going both ways showing the complexity of a multivariable causal process. Figure 16-2 is an example showing factors that prevented women in a village from participating in an income-generating scheme, and the consequences:

Figure 16-2. Example of a Causal Map


Low-level skills
Little margin for risk taking
Inability to get credit
Lack of participation in scheme
Decreased competitiveness

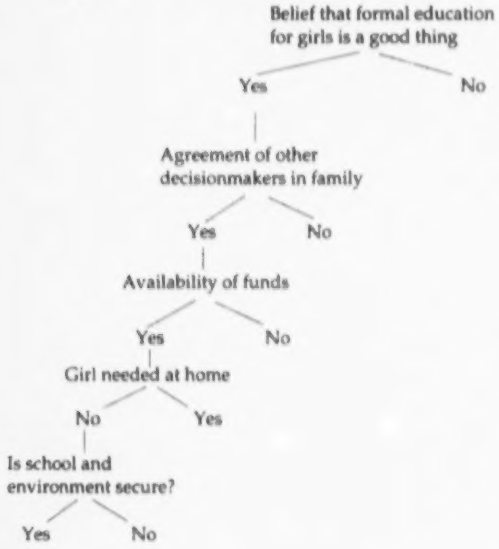
Once you have your clusters, patterns, or other groupings and have explored various relationships between them (which causes which, and so on), try showing it visually. Indicate the things that go together, family poverty and low school enrollment of children, for example. Indicate by using arrows which way you think the relationship goes. What factors might go in between these or intervene? For example, inability to pay fees, need for children to work at home? Maybe you identified some causes of local poverty, such as one parent dead, most children under working age, or failure of the harvest. These can be linked to poverty in the map as possible causes.

A way of building up such a chart is to consider one case, such as a family. Draw it out. Then consider other cases. Do they tell the same story? Do they provide rival explanations or negative cases? Try to find a pattern that explains as many as possible. Find out why the others do not fit, and incorporate all the parts into the chart.

DECISION TREES

You saw an example of a **decision tree** at the end of chapter 5 (figure 5-2), which helps you to decide what kind of experiment to do under various circumstances. Figure 16-3 is another. How does a family decide whether to send a girl to school? You can track the process through a decision tree.

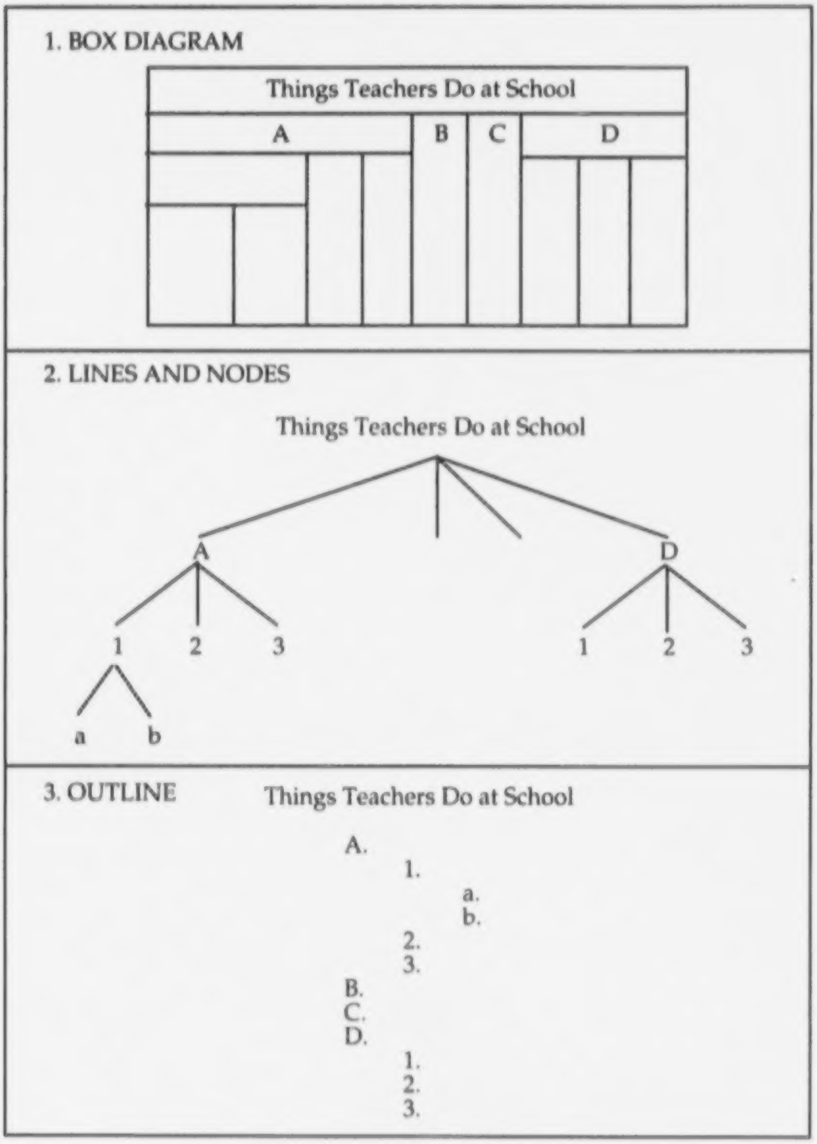
Figure 16-3. Example of a Decision Tree


Belief that formal education for girls is a good thing
Yes
No
Agreement of other decisionmakers in family
Yes
No
Availability of funds
Yes
No
Girl needed at home
No
Yes
Is school and environment secure?
Yes
No

TAXONOMIES

In chapter 3, children in a school classified the things teachers did. The resulting table was a taxonomy. One can show taxonomies in several ways (figure 16-4).

Figure 16-4. Different Kinds of Taxonomies


1. BOX DIAGRAM
Things Teachers Do at School
A
B
C
D
2. LINES AND NODES
Things Teachers Do at School
A
D
1
2
3
1
2
3
a
b
3. OUTLINE
Things Teachers Do at School
A.
1.
a.
b.
2.
3.
B.
C.
D.
1.
2.
3.

Source: Spradley (1979, p. 120).

In chapter 11, we used two of these types of display to show courses in a skills center (table 11-1 and figure 11-1).

COMPONENTIAL ANALYSIS

When we made a chart in chapter 4 showing how the girls in a school categorized other girls ("loose," "ordinary," and so on) we were showing a **componential analysis**. A display of this sort (figure 16-3) shows the definitive components or dimensions of a situation as seen by participants in a situation. Once you have a grasp of these dimensions, you too should be able to predict how a new girl (or object, or activity) would be classified.

Table 16-3. A Componential Analysis of "The Girls in This School"

Description	*Enough money*	*Look funny*	*Do favors for money*	*Do favors for love*	*Rural*	*Local*	*Handi-capped*	*Special ethnic group*
Country		X			X			
Loose			X					
Rich	X			X				
Stuck-up	X			X				
Ordinary			X			X		
Handicapped					X		X	
Mandinka					X			X

Stage 5: Drawing Conclusions and Verifying

You have gone from your raw data to patterns. You have tried to relate the patterns and explain them. The purpose of this book is to help you to do basic research in a fairly short time rather than to contribute to academic discourse. If you want to do that you need to be familiar enough with the professional literature to be able to relate the concepts or theories of a discipline to what you have found. This will tie your research to the discipline, relate it to the works of others, and give it a more powerful tool for explaining, because many other people have already thrashed out the theory and tried it out in other research. An example of a theory is Robert Park's (1928): people classify each other and then behave toward them on the basis of stereotypes that they have about them. Thus, at a party everybody listens to the minister's opinions about the World Cup even though everyone else may know more about sport. The minister is an "important powerful person," and important powerful people have opinions worth listening to. Village elders who think poor people do not send their children to school (see chapter 15) do not notice when they actually do. Teachers who think girls are not very good at mathematics may ask them simpler questions.

You may feel that you are not dealing with theory at your level of work; however, research and the subject matters chosen for research are all shaped by theory, whether you know it or not. You may actually be contributing to theory by offering generalizations, some of which help others to build a theoretical explanation. For example,

- Agricultural modernization may lead to a heavier work load, so that girls in "modernizing" agriculture may be less able to participate in schooling.
- As jobs become more "technologized," they are assigned to males, even if the work was previously "female" (We know this to be true, but why? Males are better at technology? The work is easier? More fun?) (Murdock and Provost 1973).

- Technological change may lead to redundancy, so that "redundant" women may have time, but no money.
- Rural industrialization leads to a more rigid sexual division of labor (Christine White 1984).

If you find that people in one village are obstructing plans to build a school in another village, and you have looked at all the things that have happened in connection with this, you might conclude that they are simply jealous or bad-minded. An old theory of George Foster's (1965), which has been the subject of much contention, as theories should be, might help you to get a new insight. Foster argues that in a small, closed community or situation, people view all good things—legacies, good luck, good crops, happiness—as existing in a finite (limited) supply, so if you have more, I have less, and you must have some of my share. Imagine yourself at a meeting in which someone passes around a bag of sweets. This is a limited good as there are only so many in the bag. Originally, the bag contained enough sweets for each person to have two. You are at the back of the room, and by the time the bag reaches you, none are left. What do you conclude? You might try this theory on your village findings. Are people afraid that if the next village gets a school they will never get one for their village?

Looking at this theory again, suppose that one teacher marks students according to what they got on an examination. Let us say a lot of students got almost all the answers right, so they all got high marks. But other teachers grade "on the curve": 11percent get As, 22 percent get Bs, 33 percent get Cs, 22 percent get Ds, and 11 percent get Fs, approximating a normal curve. Suppose all the students did pretty well, only the highest 11 percent would get As in this system. (Even if they all did very badly, the top 11percent would still get A.)

Suppose you see a lot of tension in a classroom: lack of cooperation among students, who are stealing books and destroying other people's notes in one school, but not in another. There could be many explanations, but you find the two schools use different grading systems. Does Foster's theory throw any light on what is happening? Or is there a rival explanation? Remember that triangulation—using multiple techniques, sources, and researchers—also includes multiple theories.

A theory will probably send you back to your material looking for things that the theory, if it is useful, will now help you understand. You will notice that this is an inductive approach. In a deductive approach you start with the theory, convert it into something that you can study, and then see if it holds up in relation to what you found.

Once you start thinking about your findings, you might consult a professional sociologist, psychologist, educator, anthropologist, economist, or expert in another discipline to see if their fields have any theories that might help you to put your work in a larger context. As you probably know by now, this is an inductive approach to analysis: data first, theory later. Deductive analysis involves putting theory first.

How do you confirm your conclusions? *You* might be convinced by them. As far as you are concerned, any fool could see you were right. But plenty of people who are not fools are going to be asking you some hard questions when they read your results. Would other researchers, working in your situation, come up with the same findings? In other words, are the findings **replicable**? Are they sound, or **valid**? Here are some common mistakes or fallacies in research:

- **The ecological fallacy**: collecting information at a higher level and then trying to interpret it at a lower one. For example, you are studying a group of villages:

> For each village, you have data on such things as the number of people, the average age of men and women, and the monetary value of a list of consumer goods. That is, when you went through each village, you noted how many refrigerators and kerosene lanterns and radios there were, but you do not have these data for each person in the village because you were not interested in that when you designed your study. You were interested in characteristics of villages as units of analysis.

> In your analysis, you notice that the villages with the population having the lowest average age also have the highest average dollar value of modern consumer goods. You are tempted to conclude that young people are more interested in (and purchase) modern consumer goods more frequently than older people do. But you might be wrong. Villages with greater employment resources (land and industry) will have lower levels of labor migration by young people. Because more young people stay there, the average age of wealthier villages will be lower. Though everyone wants household consumer goods, only older people can afford them, having had more time to accumulate the funds. It might turn out that the wealthy villages with low average age simply have wealthier older people than villages with higher average age. It is not valid to take data gathered about villages and draw conclusions about villagers (Bernard 1984, pp. 47–48).

Even though this is a survey example, the principle applies to qualitative research, as well.

- The **holistic fallacy**: tidying up your material so that inconvenient bits that do not fit your patterns, groupings, or theories are omitted. Usually this is not deliberate. The human brain, as we said before, tries to put order on chaos.
- The **exotic fallacy**: anything different, unusual, or bizarre (to you) will stand out more, be more likely to be recorded, pondered over, and so on. There is a belief about Ireland, for example, that certain things, usually preposterous ones, "could only happen in Ireland," like a beggar speaking classical Greek while a professor of Greek is unable to speak a word of it. Visitors, including researchers, are constantly noticing these things, and failing to notice that most beggars know little Latin and less Greek.
- The **going native fallacy:** "becoming one of the people." This is the "my people" syndrome. You lose your perspective, seeing things only the way local people do. You may recall that we discussed this in chapter 7 along with the next fallacy.
- The **elite fallacy**: talking to the more powerful, more prominent, more educated people and adopting their perspective.

The following sections discuss some ways to try to avoid such fallacies and verify your material.

CHECKING FOR BIAS:

You may be biased not only in the people you chose, as we saw in chapter 7, but in the events and activities that you look at and the perspectives you take.

- **Events, activities**. Is your material representative? Maybe you used a random sample, but the things people talked about were not representative. They may have talked about the ideal instead of the real ("the father of the family makes all the important decisions" may be more of a local ideal than a reality). They may have talked about the most recent events, which stick in their minds, rather than about a pattern over time. They may have talked about the more dramatic than the ordinary. In research in Zambia in 1988, one could have concluded that the country was overrun with female pilots. Almost every official who was interviewed listed this as a feasible occupation for girls. There was one, recently appointed.
- **Perspectives.** You may have had a "blinding light" experience: you had a wonderful idea that can explain everything, and now you see nothing except what it explains. Or you may think people are more concerned about a subject than they actually are: girls' education is all they talk about. But girls' education is all you talk about. They are just responding.
- **Researchers.** "Your" village, if you are studying one, is not a typical village, it is a village with a researcher in it. This changes everything. Your job is to figure out what has changed as a result of your

presence. Or the reverse may occur: the place you are studying can affect you and you might be seduced into "going native," or you might conclude, when things get tough, that the local people are engaged in a giant conspiracy to keep you from finding things out, that people are holding interesting ceremonies behind your back or secretly lining up in household formations just when you are struggling with what household means locally.

TRIANGULATION

Have you used the right techniques? Did you *observe* what people *did* and are now trying to read what people *think* into your results? Did you use as many techniques as appropriate? Did you use a wide variety of sources, types of people, documents? Did you consult or use other researchers or look at the work of other researchers? If you are aiming at developing theory, did you try various theoretical explanations?

If you are lucky, things fall into place. One approach supports another. If not, you are back (as you might have guessed) to data collection or some other phase of the analysis process. In a study in The Gambia, a map reproduced in chapter 15 showed, by household, boys and girls who went to school and those who did not. The name of each household was then put on a card and people were asked to sort them into well-being categories. They were then asked to comment, for each category, on the school attendance of its boys and girls. In every category, they overestimated (according to the information they had provided earlier for the map) the number of girls being sent to school, and also said that the poor sent almost no children, boys or girls. Which of these findings was right, if either? To make matters worse, interviews around the village showed that each village had about 25 percent of their girls missing from the map. They were not considered to be of school age for a variety of reasons.

Another interesting difference surfaced based on documentary material. An International Labor Organization study had grouped rural Gambian people into "nonpoor," "borderline poor," "very poor," and "ultra poor" (Ahmed, and others 1992, p. xii) while the villagers were calling themselves "very rich," "rich," "in between," and "poor."

In fact reconciling the material "factually" was unnecessary. Each piece of information told us something different. Once the 25 percent of missing girls was put right, the village maps reported the situation "as it was" in the school; the card sort told us about the way people thought it was or should be; and the International Labor Organization was looking at income and food security, while the villagers were looking at a broader conception of security, comfort, and well-being.

LOOKING AT EXCEPTIONS

What does not fit in? What can it tell you? In a village options assessment chart, people decide that one good option for getting girls into school is to give carpentry tools to older village boys. This is completely unlike all the other options they choose. Is this an option for getting more girls in school, or is it simply redirecting scarce resources to males? Extreme cases are a form of exception: looking at the poorest, the best students in class, the strongest teachers may give you some insights about the others who do not fall into these categories. When you are using data displays, these may stand out.

NEGATIVE CASES

Some modes of verification are borrowed directly from quantitative research in the natural sciences: If you recall from our discussion of experiments, you cannot prove a hypothesis, but you can disprove it by getting a result that shows that what you thought was the cause did not produce the effect that you expected. You can do something similar in qualitative research. Your material suggests a pattern or relationship. Look for negative cases among your interviews, case studies, and observations that do not support it or that contradict it. Can they help you to refine the pattern? Suggest a new one? Or perhaps there are several patterns.

Under certain circumstances one thing happens or people behave one way, and under others something else happens. These negative instances may help you to figure out what such circumstances might be.

Remember, of course, that there may be no pattern. You just imposed one on the material.

RULING OUT SPURIOUS RELATIONSHIPS

We have discussed spurious relationships before: A and B are related, but a third factor causes both of them. Children in the West used to be told that the stork brought them. In places that have storks, a correlation does appear to exist between the numbers of storks and the numbers of human births: when one rises, so does the other, so they co-vary. And let us say that the number of storks rises before the number of human births does, so we have the right time order. So do storks cause babies? Maybe a third thing caused both, such as the right ecological conditions. Maybe in bountiful times, people not only survive and have the right circumstances for reproducing, as do storks, but maybe now people don't need to eat storks.

In qualitative research you have to work these things out for yourself. Look at other cases, other instances, other villages, where the two things do not go together (negative cases) or where they do, but some other evidence might suggest what the connection is.

Or do a thought experiment. You think, for example, that Ghanaian villages with Queen Mothers have more active participation in community and school-related events. "If I were able to give every village a Queen Mother, would we get more interest among parents in school affairs?" But maybe Queen Mothers are only found in higher-level villages where a chief lives, and that have more centralized organizational systems and greater wealth, and one or more of those is why parents participate.

Or in schools with good sport facilities, the children do well at their studies. Maybe sports relieve tension, increase teamwork. "If I were able to provide a sports program in other schools, would the children's academic performance rise?" Maybe wealth is the cause of both: schools with sports programs also have better learning facilities, attract better teachers, and so on.

Within a particular school, children who do badly at sports also do badly at school work. "If I could improve one, would the other improve?" Think again. Maybe the children are just hungry.

CHECKING RIVAL EXPLANATIONS

Thinking about these things might lead you to look for other explanations—larger ones, as in the examples above, or just different ones. Much of the advice given so far can help you to identify rival explanations; negative instances may suggest them. Ask colleagues for ideas. Try your ideas out on local people and see if they have other explanations. But now is really not the time—you should have been thinking of rival explanations all the way through your research—if you have not and you are trying to check some now, this takes you back to—guess where—more data collection.

REPLICATING EVIDENCE

Would someone who repeated your study find what you did? Would you? We are not talking here about precision, coming up with the same numbers, for example, but coming up with the same patterns, relationships, and conclusions. You can try to replicate your findings by looking at some new instances: another school, another village, another set of teachers. Does your idea explain what is happening there, does the pattern hold true? (Of course, some things are true only for the particular place or people studied, but you can still try to check your findings against new examples in this place or with these people.) Checking for replication calls for some ruthlessness on your part; by now your findings are almost as close to your heart as your own child.

Picture your worst enemy. If you are lucky enough not to have any enemies, make one up. This person is going to do your study over again, trying to prove you wrong. Where will the weaknesses be? Look at them again.

Finally, sharing your ideas with the people who participated in your study is one of the most powerful ways of verifying conclusions. As you get ideas, make connections, see patterns, ask people, "Does it ring true?" Do they know of cases where your pattern does not hold? Can they identify people, situations, or places you should look at that would confirm your results or change your mind? Have they got better ideas?

No one follows all these procedures. Sometimes, some of them cannot be used. There is also a practical element: you want to finish your study in your lifetime. In development research you want to finish it a lot faster. The school-aged girls have grown up, and you are still messing around with variables while they cannot read and write. But using as many procedures as you can, like any form of triangulation, strengthens your research and knowing that good research should meet these standards helps keep you from going off the straight and narrow while you are collecting the information and analyzing it.

COMPUTER PROGRAMS FOR QUALITATIVE ANALYSIS

Computer programs are available for analyzing certain kinds of qualitative data (see Pfaffenberger 1988; Waitzman and Miles 1995).These can help you to code, search for, and retrieve material; use networks; create matrices; and build theory. Some are more complicated than others; some have more features. See Miles and Huberman (1984, pp. 311–17) for an assessment of twenty-two programs and addresses where you can get them.

FURTHER READING TO HELP YOU

Bernard, H. Russell. 1994. *Research Methods in Cultural Anthropology.* Newbury Park, California: Sage.

Carspecken, Phil Francis, and Michael Apple. 1992. "Critical Qualitative Research: Theory, Methodology and Practice." In Margaret D. LeCompte, Wendy L. Millroy, and Judith Preissle, eds., *The Handbook of Qualitative Research in Education.* San Diego, California; London; Tokyo: Academic Press.

Eisenhart, Margaret A., and Kenneth R. Howe. 1992. "Validity in Educational Research." In Margaret D. LeCompte, Wendy L. Millroy, and Judith Preissle, eds., *The Handbook of Qualitative Research in Education.* San Diego, California; London; Tokyo: Academic Press.

Eisner, E. 1991. *The Enlightened Eye: Qualitative Inquiry and the Enhancement of Educational Practice.* New York: Macmillan.

Guba, Egon G., and Yvonna S. Lincoln. 1989. *Fourth Generation Evaluation.* Newbury Park, California: Sage.

Miles, Matthew B., and A. Michael Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook.* Thousand Oaks, California; London; New Delhi: Sage.

Patton, Michael Quinn. 1990. *Qualitative Evaluation and Research Methods.* Newbury Park, California: Sage.

Pfaffenberger, Bryan. 1988. *Microcomputer Applications in Qualitative Research.* Newbury Park, California: Sage.

Pittman, Mary Anne, and Joseph A. Maxwell. 1992. "Qualitative Approaches to Evaluation: Models and Methods." In Margaret D. LeCompte, Wendy L. Millroy, and Judith Preissle, eds., *The Handbook of Qualitative Research in Education.* San Diego, California; London; Tokyo: Academic Press.

Spradley, James P. 1979. *The Ethnographic Interview.* New York: Holt, Rinehart and Winston.

Strauss. A., and J. Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques.* Newbury Park, California: Sage.

Weitzman, Eben A., and Matthew M. Miles. 1995. *Computer Programs for Qualitative Data Analysis.* Thousand Oaks, California: Sage.

Wolcott, Harry F. 1994. *Transforming Qualitative Data: Description, Analysis, Interpretation.* Thousand Oaks, California: Sage.

17

Quantitative Analysis

by Richard Scaglion

summary

This chapter discusses statistics that are appropriate for analyzing samples, although some can be used for universes or populations as well.

A number of computer programs are available to make your analysis much easier, but you can also do statistical calculations by hand.

***Univariate analysis** involves analyzing one variable at a time.*

- ***Frequency distributions** show the numbers and percentages of people or items that fall into different categories.*
- *Categories can be **nominal**, **ordinal**, **interval**, or **ratio**.*
- *The **mean, median, and mode** are measures of central tendency, that is, different ways of finding a "middle point".*
- *The **standard deviation** tells you to what extent your data are spread out or clumped around the mean.*
- *Indices of **skewness** and **kurtosis** tell you what your information would look like if plotted on a graph.*

***Bivariate analysis** helps you to understand association and correlation between two variables.*

- *Tests of **association** test how likely it is that a relationship between variables in your study is due merely to chance.*
- *Statisticians have established **levels of significance** to help interpret tests of associations between variables in your study.*
- *Statistics for computing the probability of the difference between what you found and what might be expected by chance are available. **Chi-square tests** are appropriate for nominal data. Other tests are available for ordinal, interval, and ratio data.*
- *Measures of **correlation** examine the strength of an association between two variables. The **phi coefficient** and **Cramer's V** are two such measures. Correlation does not prove causation, however. Just because two things go together does not mean that one causes the other.*

***Multivariate analysis** explores relationships among a number of variables.*

Richard Scaglion is professor of anthropology at the University of Pittsburgh.

This chapter shows another way of tackling step 12 (box 3-1): analyzing the results. No matter how you have organized your data, remember that like the write-up, data analysis is just like telling a story. You start out with a general description or idea of what you have observed. You then go into more detail, giving examples to illustrate your points. At the conclusion, you summarize your main findings. In a purely qualitative study, you would do these things using words alone. The evidence you would give to support your observations would be in the form of statements and illustrative descriptions. By adding quantitative data, however, you can provide more support for your conclusions.

Think about the following statements. "Many poor parents do not send their children to school." and "More girls than boys fail the Primary Leaving Certificate Examination." What exactly did the authors of these statements mean by many and more? What is the basis for their statements? Is it intuition, observation or what? Would we share their opinions? Suppose the first sentence read, "Out of 100 families in the lowest of four socioeconomic classes, 25 did not send their children to school." In this instance, one might not consider 25 of 100 poor families to be many, especially given that the general rate of school enrollment in this area was low. But what if the sentence had read, "Out of the 100 families in the lowest of four socioeconomic classes, 93 had no children enrolled in school"? This is much more convincing in the sense that the reader is more likely to believe that many poor parents really do not send their children to school.

Do not let yourself think of quantitative analysis as a mysterious process in which numbers are fed into a machine that digests the information, analyzes it for you, and spews forth numbers that are incomprehensible to the average person. *You* do the analysis. Even if you use a computer, it only does what you tell it to do. Basically, the computer is a counting device that saves you the time and trouble of counting yourself. However, you do not have to have a computer. In the examples above, you could count up the poor families that you interviewed and sort them into those that sent their children to school and those that did not. Similarly, you could count up the number of children who failed the Primary Leaving Certificate Examination and sort them by sex. However, when you have many variables, sorting all this data into so many categories by hand becomes tedious, but this is what researchers did before computers were invented, and you can do it now if necessary.

You need to ask many questions in the two examples cited. What is the general rate of school enrollment in the area that you studied? What are the children who are not attending school doing? Why are poor families not sending their children to school? Can't they afford the school fees? What factors are associated with girls' failure to do well on the Primary Leaving Certificate Examination? Is it because they have conflicting duties at home, improper study habits, poor self-esteem, or conflicts with the traditional female role; or because they marry ar a young age; or because of some combination of these factors? The computer helps us to look at all these relationships and more. Whether it is done by computer or by hand, quantitative analysis helps us to be more precise in our descriptions.

In reading this chapter, you should be aware of a distinction that statisticians make between a **sample**, on the one hand, and a **universe** or complete **population** of people or items, on the other. This chapter is written from the perspective of analyzing a sample, because most of our data generally involve samples of populations that can be considered as samples of still more general populations. If you are working with a universe, you should be careful, because certain quantitative measures such as the standard deviation have slightly different formulas depending on whether a sample or a population is being described. Generally speaking, investigators use the **statistical tests of association** listed later in the chapter to draw conclusions from a sample only, whereas many of the other quantitative measures described in this chapter, such as the **measures of central tendency** and **dispersion**, are useful ways of expressing results whether they have been derived from a sample or from a complete population. If you are working with a complete population, you might want to consult a standard statistics text such as one of those listed at the end of this chapter.

UNIVARIATE ANALYSIS: FREQUENCY DISTRIBUTIONS

Suppose you have refined your concepts (such as educational level), collected your data, and coded it for analysis as previously described in chapter 9. What do you do next? The first step is to get an overall idea of what is happening. You should look at each variable in turn to see how it is distributed. In our examination of why girls often finished their educations at Grade 6, we were interested in knowing their ages, what ethnic group they came from, their marital status, the number of years they attended school, their examination results, and so on. Each of these is a variable. We want to find out how many people or things in our sample fall into each category of each variable. For example, how many girls are single, how many married, how many widowed, and so on. This type of analysis is called a **frequency distribution,** because we want to know about the distribution of each variable, that is, how many girls fall into each category of our variable "marital status." It is also called **univariate analysis** because we are looking at only one variable, in this case, marital status.

Some of your data will fall into non-numerical categories: marital status, ethnic group, and sex are variables of this type. Other data will be numerical: age, number of years of school attended, examination scores, weight, height, and so on. In the non-numerical or grouped data, categories should be exhaustive (everything fits into some category) and mutually exclusive (nothing fits into more than one category). In some cases, the categories fit into some sort of order (like very rich, rich, in between, poor), and in some cases they do not (like single, widowed, married, divorced). When there is no inherent rank ordering of categories, that is, where each category is on the same level, we call the data **nominal**. An example is color. We cannot say that red is "higher" or "above" green; they are simply different things. **Ordinal** data are similar to nominal data, except that ranking is present. We know that cool is below hot on a temperature scale. Number-based scales form **interval** data. Here we know more than a rough ordering; we know how much higher or lower one number is than another. In the temperature scale, for example, we know that fifteen is five degrees lower than twenty. We can perform numerical computations with interval scales. We can say, for example, that five degrees plus five degrees is equal to ten degrees.We cannot do that with ordinal data: saying that cold plus cool equals hot is absurd. Yet researchers sometimes make such statements.

People who use computers a lot use an abbreviation to describe what happens when one is not careful with data analysis: GIGO, or garbage in, garbage out. Consider a marital status code like the following:

Single	1
Married	2
Divorced	3
Widowed	4

Now suppose that we had interviewed mothers of school children from each marital category. If we looked at the distribution of this variable it would look something like table 17-1:

Table 17-1. Marital Status of Mother

Category	*Code*	*Number of women*
Single	1	10
Married	2	20
Divorced	3	10
Widowed	4	10
Total		50

We could ask the computer to find the average of the variable marital status. It would compute the **mean** or average using the code numbers we have given it, and would find a mean of 2.5. Does this mean that the average mother of a school child in our study is halfway between marriage and divorce? Of course not. This is an example of GIGO. We gave the computer meaningless data and we received meaningless results.

However, suppose we still want some sort of measure of what the average school child's mother is like. Statisticians call such indices **measures of central tendency**.Table 17-1 contains nominal data, and the measure of central tendency most commonly used for such data, called the **mode**, is rather obvious: it is simply the most common category. Here the mode is 2, meaning that most mothers in our survey are married.

Suppose we asked school girls about their desired level of education, and produced the frequency distribution (for ordinal data) shown in table 17-2.

Table 17-2. Level of Schooling Desired

Category	*Code*	*Number of girls*
Primary school	1	25
Middle school	2	19
Second level	3	10
Third level	4	6
Total		60

Again, the mean or average is meaningless. The mode or most common category is primary. For ordinal data like this we have an additional measure of central tendency: the **median** or middle value. For ordinal categories, the median category is the category at the half-way point. In the example in table 17-2 we have a total of sixty girls. Half of this number is thirty. There are twenty-five in the first category and nineteen in the second, making a total of forty-four who are satisfied with a middle school education or less. The midway point has been passed; thus middle school is the median category, and is a good measure of central tendency for this sample.

What about interval data? What measure of central tendency should you use? Actually you can use all three we have mentioned, although the mean is usually the most efficient. Consider table 17-3:

Table 17-3. Ages of X District School Girls

Age	*Number of girls*
5	6
6	8
7	10
8	12
9	15
10	17
11	16
12	14
13	11
14	9
15	6
16	2
17	3
Total	129

If we multiply each age by the number in it, repeat the process for each age, add up the results, and divide by 129, we will get the mean, which is 10.3. The mode, or most common category, is ten, and the median age is also ten. All these measures of central tendency show that the average girl is around ten. Which is the best measure? The mean is a little high because of a few older girls, but all are fairly close. You could report any or all of these measures.

Box 17-1. How to Read a Statistical Formula

A formula is a set of instructions, written in shorthand. Here are a few pointers to help you read a formula.

First, you will often see letters such as *x*, *y*, and *z*. These stand for the variables. The symbol Σ tells you to sum up something. As in basic arithmetic, the symbol + tells you to add, - tells you to subtract. However, the symbol for multiplying, X, is usually not used. Instead, you will see instructions such as "*xy*," which mean that you should multiply the value of your variable x by the value of your variable y. To show that you should divide, a slash (/) or a horizontal line —— is used instead of ÷.

In some formulas you must square your number (x^2) or multiply it by itself (9^2 is 81). In other cases you must take the square root (√) of your number or find the number which, multiplied by itself, yields your number. The square root of eighty-one (√81) is 9. When you see "n" in a formula, it refers to the number of cases you are dealing with, for example, the number of girls in a District. A bar over a symbol (x) refers to the mean of whatever the symbol stands for. If "x" refers to girls' ages, x tells you to get the mean of their ages.

The formula is usually written in a way that tells you the order in which you should perform the calculations. For example,

$$\frac{x}{y} + 3$$

means divide x by y, then add 3.

If the formula says

$$\frac{x + 3}{y}$$

add 3 to x, and then divide by y.

If the formula is not clear, do your multiplication and division first, then your addition and subtraction.

If the formula contains brackets ( ), do the work inside the brackets first. For example,

$$x - (y + z)$$

tells you to add y and z, then subtract from x.

Box 17-1. How to Read a Statistical Formula (Continued)

Here is the formula for calculating the mean. The procedure for calculating chi-square (χ^2) is shown later.
The mean:

$$\bar{x} = \frac{\Sigma x}{n}$$

Let us say we are looking for the average work hours of four girls:

	Hours worked
Girl A	8
Girl B	6
Girl C	4
Girl D	6

This formula says, "To get the mean ($\bar{x}$), add together (Σ) all the values of the variable x (hours worked) and divide by the number of cases (four girls)." So we have

$$\bar{x} = \frac{8 + 6 + 4 + 6}{4} = 6$$

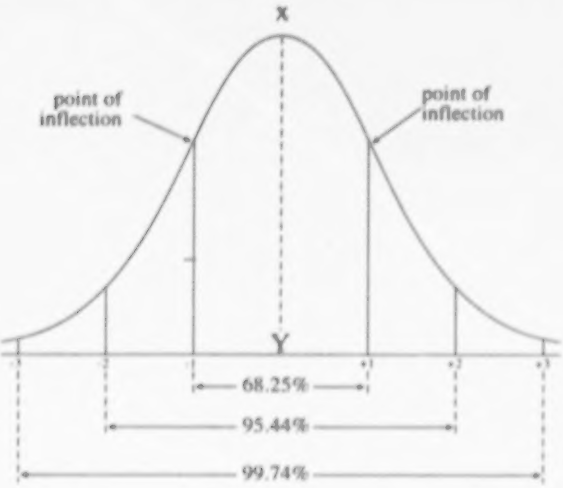
The example of girls' ages in table 17-3 will require an additional procedure. We have a number of girls in each age group, so we must multiply the number of girls by the age in each category, add them all, and then divide by the total number of girls, in this case 129.

You may have noticed that for the nominal (marital status) and ordinal (levels of schooling) data, the tables were interesting and useful, but the measures of central tendency were not so revealing. For the interval data, the table was rather long, and we really would not have had to look at all the the numbers. We could have just looked at the measures of central tendency. This is because for interval measures we can summarize our findings using descriptive statistics, that is, statistics that describe how the variable is distributed.

As you can see, measures of central tendency give us some idea of where the mid-point or "average" of the sample lies. However, that is not enough. What do the rest of the data look like? For example, in table 17-3, we can see that the data are clumped around nine, ten, and eleven, but a little bit spread out for the older girls. In other words, most of the data are fairly close to the mean. The **standard deviation** is a measure that will help us to get a picture. It tells us how far from the mean the data are dispersed.

To get a better picture of the standard deviation, and of some terms that will be introduced later in the chapter, look at a **normal curve of distribution**, shown in figure 17-1. In this curve, the mean, the median, and the mode coincide. The central axis is marked XY. Notice that there are two points where the curve changes from convex to concave. These are called **points of inflection**. If you drop a line from these points to the baseline, you will have one unit of distance, or one standard deviation on either side of the central axis or mean. On a normal curve 68.26 percent, or a little more than two-thirds of all the girls, would fall into these two central areas, that is, between -1 and +1. If you move out two standard deviations from the mean, between -2 and +2, you will expect to find 95.74 percent of all the girls. Between -3 and +3, you will find 99.74 percent of all the girls.

Figure 17-1. Points of Inflection and Standard Deviations



The greater the standard deviation for a group of figures, the more spread out or dispersed the figures are. Table 17-4 shows distributions of ages for three groups of girls whose mean average age, ten, is the same. However, standard deviations for the groups show that they are dispersed differently.

Table 17-4. Standard Deviations for Three Groups with the Same Mean

Ages of girls from W District	*Ages of girls from X District*	*Ages of girls from Y District*
10	8	6
10	8	6
10	9	9
10	9	9
10	10	9
10	10	10
10	11	10
10	12	10
10	13	18
S = 0	S = 1.54	S = 3.3

In each group the mean is ten, and in W District, so is the median and the mode. The girls from W District show no variation at all, so the standard deviation is zero. (If someone told you that the mean was ten and the standard deviation was zero, you would know the distribution automatically.) Girls from X District have more variation, and a greater standard deviation. Girls in Y District are unusual in that although the figures cluster together, a few extreme cases cause the standard deviation to be much higher.

Let us now compute the standard deviation. Because we are interested in how far each number (or variate) is from the mean, first we must compute the mean, which is simply the average of the numbers. We have already calculated the mean age to be 10.3 years. We then find the difference between each variate and the mean to get an idea of how far apart they are. For example, an age of eleven is close to the mean (a difference of only 0.7), whereas an age of fifteen is far from the mean (a difference of 4.7). If you subtracted the mean from each variate, you would get some negative numbers, for example, 7 - 10.3 = -3.3, and some positive numbers for instance, 15 - 10.3 = +4.7. We would like to add up all the differences between variates and the mean to get an idea of the total amount of dispersion, but the combination of the negative and positive numbers, would cause the total to be around zero. To eliminate this problem, statisticians square the differences (multiple each difference by itself) to eliminate the negative signs, and then they add them up. But one problem remains: the bigger the sample, the bigger this sum will be. If we had twice as many girls in our study and the sample were to be distributed in exactly the same way, this sum would be twice as big, even though the sample would not be spread out any more than before. To eliminate this problem, we divide the total sum by the sample size (actually, the sample size minus one, for reasons that are not important to this discussion). In mathematical notation, the formula discussed above is as follows:

$$S^2 = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n - 1}$$

where S^2 is the square of the standard deviation, $\sum_{i=1}^{n}$ is the sum of all the quantities, x_i is each variate, $\bar{x}$ is the mean, and n is the size of the sample.

This formula says exactly what we said in words. You read it from the inside out. For help with how to read formulas generally see box 17-1.

You have already calculated the mean. Now

1. Take each variate and subtract the mean from it.
2. Square the result.
3. Add up all the results.
4. Divide by the sample size, minus one.

You may have wondered why the above formula gave the square of the standard deviation and not the standard deviation itself. This is because the square of the standard deviation is another useful measure of dispersion called the **variance**.

Doing the complete calculations for the ages of all 129 X District girls would take a lot of space. Although it is easy to do, it becomes rather repetitive. So for purposes of illustration let us compute the standard deviation of a subsample of only five of these girls, randomly chosen from the rest (table 17-5). If you were really doing this study, of course, you would use all 129 girls. You will see that the mean and standard deviation of the subsample will turn out to be different from those of the whole sample.

Table 17-5. Computations for Standard Deviation

Age (x_i)	Mean (x)	$x_i - x$	$(x_i - x)^2$
8	10.2	-2.2	4.8
10	10.2	-0.2	0.0
11	10.2	0.8	0.6
9	10.2	-1.2	1.4
13	10.2	2.8	7.8
			14.6

$S^2 = 14.6/(5-1) = 3.6$

$S = \sqrt{S^2} = \sqrt{3.6} = 1.9$

Roughly two-thirds of all the cases in our sample of girls in X District will fall within one standard deviation (plus or minus) of the mean. For the above data, the standard deviation is 2.9. Thus, about two-thirds of the girls are between 7.4 and 13.2 (10.3 + or - 2.9).

Needless to say, many different descriptive statistics exist, each of which has a particular purpose. The intent of this chapter is not to teach you how to compute all of these, but to give you some appreciation of the more commonly used statistics and why we use them. So it is really enough for us to know that the standard deviation is a **measure of dispersion** or an indication of how spread out the data are. Just by inspection, we can see that the subsample of girls' ages that we analyzed in table 17-4 is less spread out than the full sample in table 17-3. The subsample contains no very young or very old girls. Thus, although the means are similar, the standard deviation of the subsample is less than that of the whole sample.

Keep in mind that our overall purpose is to look at (or describe) the distribution of each of our variables. The most efficient way to accomplish this is to have a computer do it for us. Many computer programs are available to accomplish all sorts of research tasks. Most of these programs have been put together in software packages so that you do not have to do any computer programming or calculations yourself. You have only to define your variables and the categories for each variable, then tell the computer what general sort of analysis you want it to do. You may not have access to a computer, but understanding what the results of a computer analysis look like is still important, so that you will be able to read and interpret them if you come across them in other studies.

Perhaps the most commonly used software package is the Statistical Package for the Social Sciences (SPSS). Researchers who want to use SPSS to do univariate distribution analysis of the sort we have been discussing generally use two routines: Frequencies and Condescriptive. The first is particularly useful for nominal and ordinal data, the second for interval data. If we had used the frequencies routine to analyze the marital status data presented earlier, our results would resemble those set out in table 17-6.

Table 17-6. Marital Status

Category label	*Code*	*Absolute frequency*	*Relative frequency (%)*	*Adjusted frequency (%)*	*Cumulative frequency (%)*
Single	1	11	21.6	22.0	22.0
Married	2	28	54.9	56.0	78.0
Divorced	3	7	13.7	14.0	92.0
Widowed	4	4	7.8	8.0	100.0
	0	1	2.0	Missing	100.0
Total		51	100.0	100.0	

One missing case has been included here to illustrate how such data are handled. A missing case would occur if, for example, an interviewee declined to give her marital status.

The category label has been defined for the computer, as has the code number. The **absolute frequency** gives the number of people in each category. The **relative frequency**, expressed here as a percentage, is simply the percentage each category forms of the total sample (where missing data are included in the total). The **adjusted frequency** is a similar percentage, except that here missing data are excluded from the calculations. The **cumulative frequency** adds succeeding categories of adjusted frequencies. In table 17-6, for example, 78 percent of the sample for whom data exist are either single or married. Cumulative frequencies are sometimes useful for ordinal data. For example, if we had a frequencies table for the ordinal variable of level of education desired discussed earlier (table 17-2), we could use the cumulative frequencies to show the increasing number of girls who were satisfied with education at a particular level or lower. We could say that for this sample 90 percent desired no more than a secondary level education.

In your final report you would not want to include tables showing the distribution of every variable, but you would select only those that were most important. Similarly, you would not want to list all the percentages that the computer calculated for you, but only those that were critical for supporting your main findings. One of the problems facing social researchers who use computer analysis is to sort through the massive amount of information generated and select the most important to report. If you are doing your calculations by hand, you merely concentrate on the most important variables from the beginning.

Computer programs like SPSS generate statistics that experts in the social sciences have found extremely useful. The *condescriptive* routine of SPSS, for example, can be used to analyze interval variables. No tables are produced because, as we have seen, these are not really useful for interval variables. Instead, a list of descriptive statistics is produced. If we used SPSS to analyze the data in table 17-3, we might get something like table 17-7.

Table 17-7. Ages of X District School Girls

Mean	10.349	Std err	0.2580	Median	10.000
Mode	10.000	Std dev	2.9306	Variance	8.5884
Kurtosis	-0.6074	Skewness	0.12873	Range	12
Minimum	5	Maximum	17		
Valid cases	129	Missing cases	0		

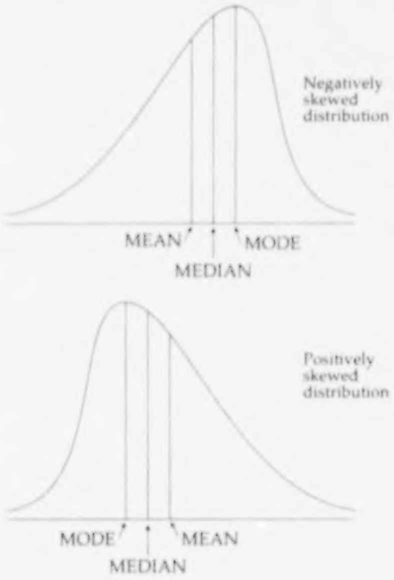
Each statistic in table 17-6 has a particular purpose; each tells something about the distribution of the variable "ages of X District school girls." First are the measures of central tendency, the mean, the mode, and the median. These give us some idea of the average age of these girls, which we saw previously was around ten years. The standard deviation and variance, as measures of dispersion, tell us how spread out the data are. We have already noted that about two-thirds of the girls are between 7.4 and 13.2 years old (one standard deviation or about 2.9 years either side of the mean, which is about 10.3 years). The **minimum**, **maximum**, and **range** simply indicate the youngest and oldest girls and the difference between them. The **standard error** is useful for certain statistical tests that need not concern us here.

Skewness and **kurtosis** are two useful indices that provide information about the shape of the distribution of the variable "ages of X District school girls." For certain statistical tests, we are concerned that the distribution of the variable be reasonably normal. By this we mean that we expect most cases to be fairly close to the mean, with fewer and fewer cases the further we go from the mean. Thus, we would expect most girls to be about ten years of age and somewhat fewer to be nine, even fewer to be eight, and going in the other direction, somewhat fewer to be eleven, fewer still to be twelve, and so on. When we plot the normal situation (what we would expect) on a graph, the shape resembles a bell, as was shown in figure 17-1. Many statistical tests require that the distribution of a variable be approximately this shape for the test to be valid. Indices of skewness and kurtosis tell us about the shape of our variable's distribution.

Skewness is a measure of symmetry that indicates how lop-sided the distribution of our variable is. The normal curve has a skewness index of zero, because it is perfectly symmetrical. However, positive skewness indicates that the "hump" in our shape is not in the center, but to the left of center: the cases are clustered to the left (below) the mean, with extreme values found mostly to the right. Consider the distribution of the variable "ages of X District school girls" presented in table 17-3. This distribution would have a slightly positive index of skewness (the actual index is about +0.13) because the clustering is to the left and most of the extreme values (older girls) are to the right of the mean. The higher the index of skewness, the more lop-sided the distribution. Negative skewness indicates that the distribution is skewed in the opposite direction, with cases clustered to the right of the mean and most extreme values to the left.

Suppose that in table 17-3 most of the girls were clustered in the older range, with only a few extreme cases below the mean. Our "hump" would appear at the right of our shape, indicating negative skewness. Figure 17-2 shows how negatively and positively shaped distributions look.

Figure 17-2. Skewed Distributions


Negatively skewed distribution
MEAN
MODE
MEDIAN
Positively skewed distribution
MODE
MEAN
MEDIAN

Kurtosis is a measure of how narrow or flat the distribution is. Is our hump shaped like a bell, a finger, or a plateau? Again the normal curve has a kurtosis of zero. A positive index of kurtosis indicates that the distribution is narrower than the normal curve. Such a curve would look tall, thin, and finger-like compared to the bell-shaped curve. A negative index of kurtosis would mean that the curve would look somewhat flat, with no sharp peak. A positive index indicates a narrow curve. The greater the index, the narrower the curve.

As should now be clear, the various statistics help describe how interval variables are distributed. They provide the statistician with a sort of shorthand in which a quick scanning can convey quite a lot of information and eliminate the need to plot most variables. So long as the variables are reasonably normally distributed, with indices of kurtosis and skewness near zero, relatively small standard deviation, and measures of central tendency that are relatively similar, the researcher can confidently proceed with further analysis. If any of these statistics seems to be very different from what you expected, you can use the tables provided by the frequencies program to provide additional information about the distribution of the variable in question.

BIVARIATE ANALYSIS: ASSOCIATION AND CORRELATION

By now, you should have a fairly clear idea of the basic description of your data. This was the purpose of our univariate or distribution analysis. You have looked at each variable in turn, you know how many of your sample of people or things fall into each category of each variable, and you know something about what the average person or thing is like. This will help you to describe your sample. You should now be able to give a clear picture of the population of a school, for example. You know, for instance, how many children of each sex are enrolled, how many children are in each grade, what percentage of each ethnic group is represented, how many children come from poor families, and so on.

Now you want to carry this analysis one step further. You want to know about the relationship between two variables. You now know how many of the school children are from the lowest socioeconomic class, and you can be more precise about the first of the two statements that opened this chapter: "Many poor parents do not send their children to school." But is socioeconomic class related to the sex of the child? That is, are poor families more likely to send boys to school than girls? Is socioeconomic class related to the child's success on examinations, to attendance patterns, to years of schooling completed, and so on? To answer these types of questions we need to do a **bivariate** analysis, or an analysis of the relationship between two variables.

To undertake such an analysis, once again you need to consider the level (nominal, ordinal, or interval) of the data. Suppose that we wanted to examine the relationship between sex and school enrollment, both of which could be considered to be nominal variables. To look at this relationship, we need to construct a table with the categories of one of the variables along one axis and the categories of the other variable along the other axis. Such a table is called a **contingency table**. If we actually did such an analysis of a school district, we might use hand tallies to construct a contingency table as shown in table 17-8.

Table 17-8. School Enrollment in Bawianga Village

Sex	*Not attending*	*Attending primary*	*Attending postprimary*	*Total*
Boys	33	75	12	120
Girls	33	72	13	118
Total	66	147	25	238

An examination of table 17-8 does not seem to show much of a relationship between sex of the child and level of schooling. This distribution is about what we would expect by chance. Contrast table 17-8 with table 17-9.

Table 17-9. School Enrollment in Bawianga Village

Sex	*Not attending*	*Attending primary*	*Attending postprimary*	*Total*
Boys	25	75	20	120
Girls	43	62	13	118
Total	68	137	33	238

Table 17-9 seems to show some relationship between the variables in question: more girls than boys do not attend school, and fewer girls than boys are enrolled in both primary and postprimary schools. One could imagine a situation in which the sex imbalance was even greater than this; a situation in which virtually no girls were enrolled in school at any level. In this case, the relationship between the variables would be even stronger. Obviously there is some sort of a continuum between what we would expect purely by chance and a "perfect" relationship (in the statistical sense). We need some sort of measure to indicate where along such a continuum the table with which we are concerned falls.

It is possible, of course, that no relationship actually exists between sex and school enrollment despite the apparent relationship we observe in table 17-9. We might have chosen a bad sample where, just by chance, many girls were not enrolled in school, and this did not represent a broader pattern. The first major category of statistical test, a **test of association**, measures how the likelihood that the distributions observed being due merely to chance.

Suppose that I had a coin with a head side and a tail side, and I wondered whether it was a fair coin, or perhaps was minted improperly so that one side was heavier than the other. If I flipped the coin once, and it came up heads, I would not think my suspicions were justified, because there is a fifty-fifty chance, or 50 percent probability, that this would happen just by chance. If I then flipped the coin again and got another head, I would perhaps begin to suspect something. There is still a 25 percent probability, however, that this would occur by chance. There is a 12.5 percent chance of three consecutive heads, a 6 percent chance of four, a 3 percent chance of five, a 2 per cent chance of six, and so on. By the time seven or eight consecutive heads had come up, either a very unlikely event had occurred, or else my suspicions about the coin were correct.

Naturally, different researchers would become convinced at different points in the above test. Some people would be convinced after five or six heads, others would wait for ten heads to become convinced. Statisticians have set certain standard **levels of significance,** or probability levels, at which one might become convinced. The lowest of such levels is usually 0.05 or 5 percent. This means that the observed distribution, or the pattern of heads that we got, might come up 5 out of 100 times purely by chance. Stated differently, there is a 5 percent chance that this distribution occurred randomly. The next level is 0.01, where the distribution only has a 1 percent probability of occurring by chance. The last commonly used level of significance is 0.001, or only one chance out of 1,000 of the distribution occurring randomly.

Which level of significance should you use? That is up to you. What are you willing to accept? If you accept the 5 percent level, 5 percent of the relationships that you report are likely to be due to chance.

Returning to the table of sex and school enrollment, how do we obtain such probability using a statistical test of association? There are many such statistical tests, all of which usually take a similar form. A statistic is computed that is associated with a probability level depending upon the difference between the distribution and what would be expected by chance. For nominal data, the appropriate statistic is called the **chi-square**, written χ^2 . To give you an idea of how such statistics are computed, let us look at how we would work out a chi-square by hand.

First you need to understand some basic terms. Look again at table 17-9. You will see that sex forms two rows (rows go across) while school enrollment has three columns (columns go down). Contingency table sizes are named according to a "rows by columns" format. Thus table 17-9 is a two-by-three contingency table. The totals in the margins of the table are called **marginals**. We see that 118 is the girls' row total. The number in the lower right, in this case 238, is the grand total or total sample size.

The overall strategy in computing the chi-square is to figure out what we would expect, by chance, to occur in each box or cell of the table. Then we look at what actually occurs in each cell. The bigger the difference between what is expected and what really occurs, the more likely that a relationship between the variables in question really exists.

How do you figure out the expected value for each cell? Consider the upper left-hand cell, boys not attending school. How many children would we expect to be in this category by chance? In our sample, 68 out of 238 children are not enrolled in school, or 28.6 percent of our sample. If no relationship exists between the variables, we would expect about 28.6 percent of the boys to be in this category. As the sample has 120 boys, 28.6 percent, or about 34 of them, would be expected not to attend school. This is very different from the 25 boys whom we observed in this category.

A formula for figuring out the expected value in each box is as follows:

$$E = \frac{\text{row total x column total}}{\text{grand total}}$$

Using this formula to calculate the expected value in the first box we would have:

$$\frac{120 \times 68}{238} = 34 \text{ (rounded to the nearest whole number)}$$

just as we computed above. Once we know that 34 of the 68 children not attending school would be expected to be boys, we know by simple subtraction that the remaining 34 children not attending school would be expected to be girls. We could, of course, apply the above formula as follows

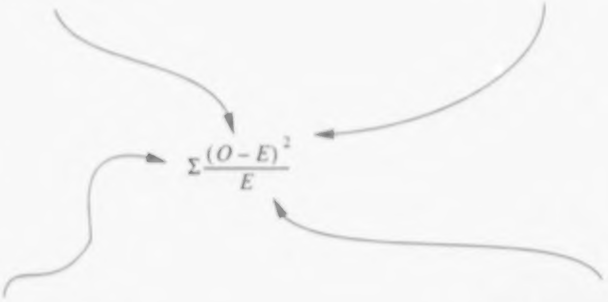
$$\frac{118 \times 68}{238} = 34 \text{ (rounded to the nearest whole number)}$$

The purpose of this section is not so much to show you how to compute a chi-square as to give you some appreciation of how it is computed. The formula for the chi-square is as follows:

$$\chi^2 = \Sigma\frac{(O-E)^2}{E}$$

where χ^2 is the chi-square statistics, Σ is "the sum of," O is any given observed value, and E is the expected value. Again, we read the formula from the inside out.

1. Compute the expected value for each cell.
2. Subtract the expected result from the observed result.
3. Square what you get.



$$\Sigma\frac{(O-E)^2}{E}$$

4. Repeat this for each cell and add up all the results.
5. Divide the number you get by the expected result.

If you have followed all this so far, you will realize that the bigger the difference between observed and expected values, the bigger the chi-square. That is, when the numbers in the contingency table are very different from what we would expect by chance, we would expect to find a large chi-square value. Let us actually compute this chi-square. First we letter the cells going across the rows so that the boys' row has cells a, b, and c and the girls' row has cells d, e, and f. We would compute the chi-square as shown in table 17-10.

Table 17-10. Computations for Chi-Square

Cell	O	E	(O – E)	$(O - E)^2$	$(O - E)^2/E$
a	25	34.3	– 9.3	86.5	2.5
b	75	69.1	+ 5.9	34.8	0.5
c	20	16.6	+ 3.4	11.6	0.7
d	43	33.7	+ 9.3	86.5	2.6
e	62	67.9	– 5.9	34.8	0.5
f	13	16.4	– 3.4	11.6	0.7
					$\Sigma = 7.5$

We still have not yet reached our ultimate goal, which is to translate the chi-square statistic into a probability. We do this by determining the **degrees of freedom**, which we calculate by using the following formula:

degrees of freedom = (rows – 1) x (columns – 1)

where df is the degrees of freedom, R is the number of rows in the contingency table, and C is the number of columns in the contingency table. The df for table 17-10 is 1 x 2 = 2. We would then look at a chi-square table found in most statistics texts. Here is part of one.

Degrees of freedom	*Significance levels*			
	20% *(one chance in 5)*	*10%* *(one chance in 10)*	*5%* *(one chance in 20)*	*1%* *(one chance in 100)*
1	1.64	2.71	3.84	6.63
2	3.22	4.61	5.99	9.21
3	4.64	6.25	7.81	11.34
4	5.99	7.78	9.49	13.28
5	7.29	9.24	11.07	15.09

We can see from our table that with two degrees of freedom, a value of 7.5 for χ^2 would be significant at the 5 percent level, being bigger than 5.99, but not at the 1 percent level, being smaller than 9.21. Thus the observed distribution would occur less frequently than 5 percent of the time due to chance alone. Given such a finding, we can be reasonably confident that a relationship really exists between sex and school enrollment patterns.

At this point, you will perhaps be happy to know that the chi-square is the only statistical test of association to be computed in this chapter. Although the above calculations may seem tedious, they do not really take long to work out once you are familiar with them. And again, if you have access to a computer, it can make short work of these sorts of computations. A computer software package called the Statistical Package for the Personal Computer checked the foregoing calculations in less than a minute.

Each different type of statistical test takes basically the same form, where the final figure is a probability. Thus, even when you are unsure as to how a statistic is actually calculated (as you may still be unclear about the chi-square), so long as the statistic is appropriate, the results are not difficult to interpret, that is, they indicate the probability of the observed distribution occurring by chance or through sampling error. The smaller the probability, the more confident you can be of your results. Generally, the probability should be less than .05 for you to believe that some relationship between your variables exists.

Naturally, the smaller your sample size, the greater the probability that the distribution is due to chance. In other words, if you had only recorded the sex and school enrollment pattern of twenty or thirty students, even though the proportions of enrollment patterns might be exactly the same as reported in table 17-9, it is more likely that you might have selected an unusual sample. As the numbers involved are smaller, the chi-square would be smaller, and the probability would be greater that the distribution was due to sampling error. This is the why social scientists are so enamored of large samples.

Because of this problem of sample size affecting probabilities, statisticians have devised another type of statistic, **measures of correlation**, that measure the strength of the association regardless of sample size. Think again of the example of flipping coins. If you get three heads in a row, you have got nothing but heads. This is a very strong association—perfect in fact—but it might easily happen by chance. By contrast, getting 100 heads in a row, followed by one tail, followed again by 100 heads, would actually be a weaker association (it wasn't perfect), but it probably would not have happened purely by chance because the sample size (number of flips) is so large. Thus probabilities together with measures of the strength of associations help us to make up our minds about bivariate relationships. We can feel confident that a relationship really exists when probabilities are low and strengths are high.

For a two-by-two contingency table (one with two rows and two columns), the measure of correlation associated with the chi-square statistical test is called the **phi coefficient**. Phi is computed by dividing the chi-square by the sample size (thus controlling for sample size), and then taking the square root of this number. For tables other than two-by-two, a related statistic called **Cramer's V** is computed.

Just like the statistical tests of association, the measures of correlation all take the same form. Thus, without knowing exactly how such indices are actually computed, you can successfully interpret them once you know a few basic principles. Measures of correlation generally range between -1 and +1. A **correlation coefficient** of zero means that there is absolutely no relationship between the variables. Positive measures of correlation indicate positive relationships. This means that as one variable increases, the other also increases. An example of such a relationship would be height and weight. Generally speaking, the taller a person is, the more she or he will weigh. Of course, the relationship is not perfect, because some people are short and stout and some are tall and thin, but the relationship generally holds. If the relationship were perfect, the correlation coefficient would be one. The greater the measure of correlation, the stronger the relationship.

Sometimes variables may be related in a negative direction. An example might be family income with number of children at home during the day. As income increases, we might expect that parents would be more able to send their children to school, such that the number of children remaining at home would decrease. In this case, we would expect a negative index of correlation, the more negative, the stronger the relationship. The **absolute value** of a number is the size of a number if we ignore the sign (+ or -) of the number. We could then say that the greater the absolute value of the measure of correlation, the stronger the relationship between variables. The sign merely tells us whether the relationship is positive or negative.

To summarize the above discussion, for each bivariate relationship two classes of statistics might be useful to evaluate the relationship: a statistical test of association that will ultimately be expressed as the probability of the relationship being due to chance (such as sampling error), and a measure of correlation between -1 and +1 that tells us about the strength of the relationship. We generally consider relationships that have less than a 5 percent probability of occurring by chance ($p < 0.05$) as being **significant**. We consider relationships with correlation coefficients having absolute values of about 0.7 or 0.8 as being strong. In contrast, probabilities of about 0.3 (three chances out of ten of being randomly distributed) and correlation coefficients of 0.1 or 0.2 are not thought to indicate much of a relationship between the variables of interest.

Table 17-11 summarizes the types of data we have discussed together with the names of the tests of significance and measures of correlation most commonly used. See almost any introductory statistics text (such as those listed as the end of this chapter) for further discussion of these tests and measures.

Table 17-11. Common Tests of Association and Measures of Correlation

Type of data	*Statistical tests of association*	*Measures of correlation*
Nominal	Chi-square Fisher's exact test	Phi Cramer's V
Ordinal	Wilcoxen U (Mann-Whitney U)	Gamma Kendall's tau Spearman's r
Interval	Student's t	Pearson's r

One word of caution concerning table 17-10. It is based on the assumption that we are comparing nominal data with nominal data or ordinal with ordinal. In some cases we might need to compare data of different levels, nominal with ordinal, for example. We might try to relate marital status of girls (nominal data) with level of completed education, such as primary, middle, or secondary school (ordinal data). In this case, we must use the tests and measures of correlation associated with the data of the lower order. So when we are comparing nominal with ordinal data, we must use the tests for nominal data. This is because ordinal tests are based on the *order* of the data; we want to know whether, as one variable increases, the other either increases or decreases. For nominal data the order is meaningless, so we are only seeking to find out whether there is an association of any type between the variables in question.

Researchers who use the SPSS to analyze bivariate data find three routines particularly useful: Crosstabs, T-Test, and Scattergram. The Crosstabs routine is generally used for nominal or ordinal data, while the other two are used when at least one variable is interval. The crosstabs routine produces contingency tables together with associated statistics. Let us look at such a table for one of the relationships we might like to examine.

Some researchers have noticed a pattern in which men teachers seem to be more highly educated than women teachers, and consequently seem to teach at higher levels more frequently: for example, at the secondary level. Suppose that you want to examine this pattern for a large sample of teachers from your country. You collect your data, divide your sample by sex and level of education, use your computer software to provide you with a cross-tabulation or contingency table comparing these two variables, and get results similar to those in table 17-12. (A real cross-tab table will have the items presented in the heading section of table 17-12; it will not have the words "count," "row %," and so on alongside the actual figures in the body of the table. They appear here for the sake of clarity.)

The first thing you probably notice is that there are a lot more numbers in the cells than when we looked at similar contingency tables produced by hand (tables 17-7 and 17-9). For the moment, focus your attention on only the top numbers in each cell: these are the frequency counts indicating how many are in each cell. If the other numbers are ignored, this contingency table is the same as the others we produced. The rest of

Table 17-12. Level of Teacher Training by Sex

Sex	*Count Row % Col % Total %*	*Training none (Code) 1*	*Some 2*	*Program 3*	*Degree 4*	*Row total*
Women	*1 (Count)*	62	33	36	16	147
	(Row %)	42.2	22.4	24.5	10.9	38.5
	(Col %)	57.9	34.7	37.9	18.8	
	(Total %)	16.2	8.6	9.4	4.2	
Men	*2 (Count)*	45	62	59	69	235
	(Row %)	19.1	26.4	25.1	29.4	61.5
	(Col %)	42.1	65.3	62.1	81.2	
	(Total %)	11.8	16.2	15.4	18.1	
	Column (Count)	107	95	95	85	382
	Total (Row %)	28.0	24.9	24.9	22.3	100.0

Kendall's Tau c = 0.28768 Significance 0.0000 Gamma = 0.39632

the numbers in the cells are percentages to help you in your descriptive discussions of the data. In the upper left-hand corner of the table is a guide to the numbers in each cell. First is the count, which we have already described. Next is the row %, or the percentage found in each cell for that row. For example, the first row consists of the 147 women teachers. The row % in the first cell is 42.2 percent, indicating that 62 out of 147, or about 42 percent, of women teachers had no training at all. Next is the column %, which in this case tells us that 57.9 percent of all of the teachers who had no training at all were women. Both of these numbers support our hypothesis, but percentages can be deceiving, as we have seen. (The fourth number is the percentage that these untrained women represent out of the total 382 people.)

Statistical measures have been devised to put more "objectivity" into data analysis. For this reason, we need to examine the measures that accompany the table. Both the Kendall's tau and the Gamma coefficients have positive values, indicating a positive relationship between the variables. This is in the direction we predicted. The relationship is not strikingly strong, however, because these coefficients are not very large. However, the sample size is large. The Kendall's tau statistic has a probability associated with it that appears simply as 0.0000. This means that the probability of a relationship of this type occurring by chance in this large a sample is so small as to be nearly zero. We would thus have good support for our hypothesis about the relationship between sex and teacher training. We have used ordinal measures to examine this relationship, because the categories of "sex" could be considered either as nominal (different categories) or as ordinal (ranked according to "maleness," with "female" being seen as "less maleness." Alternatively, we could take "femaleness" as the standard). Because the category level of teacher training can also be considered as ranked or ordinal data, ordinal statistics are appropriate for us to use.

As noted earlier, the computer is a slave to your instructions. We know from table 17-11 that Pearson's r is inappropriate for ordinal data. It should be used for interval data only, because the nature of the computations for Pearson's r require actual *measurements* of some sort, but the computer will compute Pearson's r for table 17-12 if you ask it to, again illustrating the GIGO principle. This would be rather like averaging ten apples and ten oranges and getting apple-and-a-half. For this reason, if you do use a computer, you should be careful to give meaningful instructions so as to produce appropriate statistics.

For interval data, the crosstabs routine is not very useful. There are generally so many categories for each interval variable (because nearly every measurement is slightly different) that we get an enormous contingency table that is extremely hard to read, much less interpret. We need to turn to other types of analysis.

When we have an interval measurement as one of our variables (for example, test scores or IQ scores) and the other variable consists of a few categories (males and females, for example), we can use the **Student's t** test to examine whether there is a difference between any two categories. By comparing the mean or average scores of males and females, for example, we could see whether any difference we observe is significant.

For example, you gave an examination to the students in a mathematics class. The boys in the class had an average score of 91, whereas girls averaged 86. You could use the t test to determine the probability of a difference like this being due to sampling error or chance. If you arrive at a final probability of 0.02, suggesting that the observed distribution would occur by chance only 2 percent of the time you could well conclude that there really was a difference between the boys and the girls. If, however, the t test indicated a probability of 0.8, you would conclude that the observed distribution had an 80 percent chance of being random. This would mean that if you had tested two randomly chosen groups of similar sample size in which each group consisted entirely of boys, you would find a similar difference in test scores about 80 percent of the time. In this case, you would decide that there was no important difference between girls and boys on the test. Again, the SPSS has a routine for researchers called **T-Test**, which computes this test.

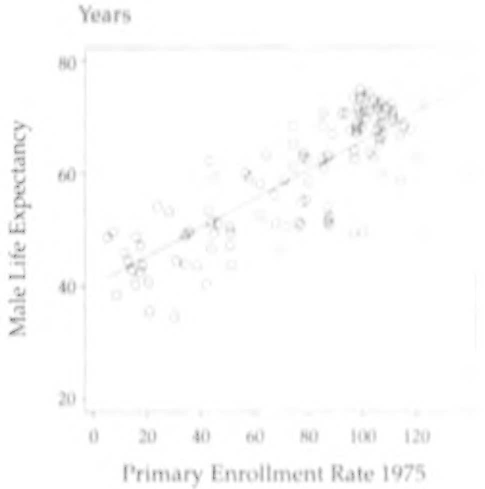
As you are now aware, the type of data you have determines the type of bivariate analysis you undertake. In the crosstabs example (table 17-12), we used a contingency table because the variable "level of teacher training" was an ordered (ordinal) variable, but suppose we had gathered the exact amount of teacher training in years. Here, teacher training would be a more exact measurement; an interval level variable. We could use the t test to compare the mean or average years of training for men and women.

At times you might want to examine or report the strength of the relationship between two interval variables: height and weight, age and income, family size and income, and so forth. SPSS has another routine called **Pearson Corr** that computes Pearson's r, the appropriate measure of correlation. Another useful routine, **Scattergram**, not only computes Pearson's r, but also provides a plot of the two variables. Figure 17-3 provides an example of such a plot.

Figure 17-3 plots the distribution of two interval level variables in a study of education in various countries. It is meant to illustrate the relationship between male life expectancy and primary school enrollment: as the life expectancy of the citizens of a particular country increases, the primary enrollment rate also increases. Each o on the table represents a data point or country. You will notice that a line extends from the lower left across the figure to the upper right. This line would not always be plotted on the printout, but has been added for illustrative purposes. This line, which best approximates the **linear** or straight-line relationship between the two variables, is called a **regression** line. Pearson's r is computed by measuring how far the data points are from this ideal line. Here, the Pearson's r is 0.75095, indicating a strong positive correlation.

A word of caution concerning linear regression analysis. This type of analysis, together with Pearson's r and associated statistics, is only meant to test or examine variables that are associated in a simple straight-line fashion. Such relationships could be roughly expressed in the form: the more of A, the more (or less) of B. But interval variables could be related in other ways, for example, where the plot looked like a curve that increased and then decreased. Such a relationship might be described as: the more of A, the more of B up to a point, after which the less of B. Quantitative techniques for describing such relationships are available, but they become somewhat complicated and are beyond the scope of this discussion. In basic descriptive social research, we are interested in illustrating straight-forward relationships. If, for some reason, a complex bivariate relationship between interval variables became critical to your discussion, you could simply show the scattergram plot to allow the reader to examine the relationship visually.

Figure 17-3. Example of a Plot of Pearson's r Generated by the Scattergram Routine



USING DESCRIPTIVE STATISTICS

We are now at a logical point to conclude our discussion of how data analysis can help you provide support for your descriptive research. The first step is to look at the distribution of each important variable to understand the make-up of your study population. You probably will have an intuitive feel for how many people or things are in each category of each variable just from having done the study. The data analysis merely helps to confirm what you already know. You may choose to include a few frequency distributions or descriptive statistics from your univariate analysis in your write-up to clarify the nature of your population. This helps you to be more precise and convincing in your description.

In doing descriptive research, social researchers generally also have a feel for bivariate relationships. If, indeed, families in the lowest socioeconomic class are less likely to send their children to school, and this is the general topic of your research, you are likely to know, or at least to suspect, that this is true. Again, bivariate analysis helps to confirm what you already suspect, is true. Including contingency tables and statistical tests in your write-up helps to convince the reader that you are being objective and have nothing to hide. I am always suspicious when I read a descriptive report in which I am simply told that a particular relationship exists. I am also suspicious of mere percentages, because, as we have seen, these can be misleading without reference to all the data. I feel much more comfortable when I can scan a contingency table for myself. Finally, I tend to be suspicious of overly complex quantitative treatments where simple tables and statistics would suffice. Researchers often use these to mask the absence of straightforward relationships between variables.

In this chapter we have discussed what, for the most part, is called **descriptive analysis**. As more variables become involved, they begin to affect one another in complex ways, and you lose the feel for the data that you had in univariate and bivariate analysis. **Multivariate analysis** is used to explore the relationships among a number of variables. Such analyses are generally called **exploratory statistics**. You are less interested in confirming relationships already suspected than in revealing relationships obscured by the complex interaction of variables. While such analyses can be of use in descriptive research, they take us somewhat beyond the bounds of basic social research and are beyond the scope of this chapter.

A final word of caution: just because two variables are associated, do not assume that one causes the other. Correlation makes no statement about causality. Consider table 17-13, a contingency table.

Table 17-13. Relationship between Fire Trucks and Fires

	Fires	
Fire trucks	*Present*	*Absent*
Present	20	2
Absent	0	30

These data might be based on a number of observations in a small town. The fire department is apparently efficient: whenever fires occurred, a fire truck was on the scene. If you were not careful, you might conclude that the fires were caused by the fire trucks. Obviously this is stupid, but researchers who ignore the fact that correlation is not causality often arrive at equally stupid conclusions.

You should also keep in mind that you are never proving that any relationship exists, you are only showing that it is more or less likely. If someone flips a coin that comes up heads 100 or 1,000 times in succession, you would be inclined to suspect that something was wrong with the coin. However, the laws of probability tell us that it is possible, although extremely unlikely, to get 100 straight heads just by chance. For this reason you should avoid statements such as: "This proves that … " or even, "This shows that …" You can say something like: "This suggests that …" or "This supports the idea that …"

Finally, do not worry if you are not quantitatively oriented. Remember that data analysis is just a tool to help you be more convincing and to make your work easier. You can use data analysis at a variety of levels. If you just have a few variables that you want to describe or want to show how strong one or two relationships are, you might consider doing a few simple statistical tests by hand. Basic statistics texts will help you to do this. You may actually save time by not coding your data or doing computer analysis, but if you plan to look at a relatively large number of variables and you have access to a computer, consider computer analysis. It really is not difficult. So many convenient programs are available that it is really only a matter of defining your variables and requesting the appropriate statistics. SPSS is available at most research facilities that use computers. You need only to put aside your fears, tabulate some of your data, and use it to make your final report that much more precise and convincing. But whether you do your computations by hand, by computer, or not at all, the material in this chapter will help you to make sense of research reports that do use quantitative analysis.

INTEGRATING QUALITATIVE AND QUANTITATIVE DATA

Can you use the quantitative analytical approaches in this chapter and the qualitative ones described in chapter 16 together? You may remember that we have discussed triangulation—using multiple methods, sources, researchers, theories on a problem—several times in this book. Triangulation can also be used for analysis by combining different ways of figuring out what you have got.

The few researchers who use both qualitative and quantitative data in the same study tend to present one kind of material and then another, without integrating them. Researchers Caracelli and Greene (1993) have reviewed a small number of successful instances in which researchers in the field of educational evaluation have managed to combine their material more successfully:

- **Data transformation**: you can convert qualitative data to quantitative data or vice versa so that you can analyze them together. To do this, you code the qualitative data, using numbers into the same coding categories that you have used for your quantitative data. Alternatively, you convert your quantitative data into words, and look for named patterns, themes, and groupings, just as you would with qualitative data.

- **Typology development**: you can use one type of data and develop a typology or set of categories. Use these categories to analyze the data collected the other way.
- **Extreme case analysis**: you can identify extreme cases, for example, analysis of a questionnaire shows a small number of girls who do not intend to go on to secondary school, but who seem to have all the characteristics that usually lead other girls to continue on. Qualitative data can probe this. Alternatively, you come across such girls in interviews. How widespread is this situation? Do any other characteristics explain your findings? A questionnaire can help here. The analysis of each kind of material will refine your understanding.
- **Data consolidation or merging**: putting both kinds of material together, as in data transformation, to create *new* variables (not simply transformed ones) that you then investigate or analyze.

As a beginning researcher, you are probably most likely to use extreme case analysis, learning from one type of analysis and testing it or exploring it further through another type of analysis.

FURTHER READINGS TO HELP YOU

Statistics

Bernard, H. Russell. 1984. *Research Methods in Cultural Anthropology*. Newbury Park, California: Sage.

Blalock, Hubert M., Jr. 1979. *Social Statistics*, revised ed. New York: McGraw Hill.

Fitz-Gibbon, Carol Taylor, and Lynn Lyons Morris. 1987. *How to Analyze Data*. Newbury Park, California: Sage.

Irvine, John, Ian Miles, and Jeff Evans, eds. 1976. *Demystifying Social Statistics*. London: Pluto Press.

Kenny, David A. 1987. *Statistics for the Social and Behavioral Sciences*. Boston: Little Brown.

Computer Applications

Berkowitz, Stephen D. 1978. *The Computer as Master or Servant*. Toronto, Canada: University of Toronto: Institute for Policy Analysis.

Cozby, Paul C. 1984. *Using Computers in the Behavioral Sciences*. Palo Alto, California: Mayfield.

Klieger, Douglas M. 1984. *Computer Usage for Social Scientists*. Boston: Allyn and Unwin.

Nie, Norman H. 1979. *SPSS: A Users' Guide to the SPSS Conversational System*. New York: McGraw-Hill.

18

Presenting Your Results

summary

Sharing your results is an essential part of the research process. How you do this depends on your audience and your purpose. Your presentation may take a variety of forms: written or verbal reports, a videotape, workshops, and so on. Shorter is better. Clear language is essential.

Your presentation will probably contain some ***description*** *of what you found, some* ***analysis****, and some* ***interpretation****. Applied research will also contain* ***recommendations****. This chapter shows several ways of organizing each of these.*

Different audiences require different ***formats****. Writing for an academic audience, for example, means using a fairly standardized format. Organizations may have their own preferred forms. The needs of other audiences may require that you develop a format specifically for them.*

To make your research useful, you should work from the beginning with the people involved so that your recommendations are practical, realistic, and have genuine possibilities for being implemented.

We are now at step 13 (box 3-1): presenting your results. A major problem in development-related research is that once it is completed, the people who participated may never hear from the researcher again. Ministry officials who helped to locate statistics, teachers who got involved, and villagers who took time from their work to help are all left in the dark. What did the researcher find? Will anything useful come out of it? Will we bother to help the next researcher who comes along?

This problem is more common among outside researchers, who may simply leave the country or area, but even local researchers can skip what is an essential phase of the research, communicating the results. Selfishness, arrogance, and inefficiency are the three most common reasons for failing to share and use research findings. Researchers may think that advancing their careers by publishing the results in an academic journal or circulating them to colleagues in an organization is more important. Or perhaps they think that the people who participated do not really count. If the results are going to have an impact on their lives, they will find out about them eventually. Finally, researchers may be so disorganized or may have collected so much information that determining the results takes years, at which point no one is interested any more.

Your frame of mind is important here: are you *using* people or are you *working with* them? Taking up people's time, raising their expectations, and then disappearing is unethical. You will have been careful, of course, not to promise anything that you cannot deliver, but even so, it is reasonable for people to expect that even if nothing more practical comes of the research, they will at least be able to share your findings, discuss them, and perhaps gain some insights.

From the researcher's point of view also, skipping this stage is foolish. People's comments can help you to correct mistakes, refine your work, and consider other interpretations. Finally, it is unwise on a practical level too. People will not help you again, and they may not help anyone else either.

So you will present something, but what? The answers to these questions will help you to decide:

- What is the purpose of the research? Are you supposed to provide a basic picture? Are you supposed to explain something? Are you supposed to evaluate? Are you supposed to come up with a plan of action? Are you facilitating local people to develop their own plan of action?
- How will the research be used and by whom? Perhaps your research will lead to a set of questions that project planners should ask themselves before starting a new project. Perhaps ministry of education, staff will use it to create a slide show to help sensitize local people to the advantages of girls' education. Perhaps the research will provide detailed case studies to show a ministry or nongovermental organization (NGO) why a particular intervention did not work and how it might be improved. Perhaps you will have twenty minutes to convince busy officials that the expensive, newly published textbooks are seriously gender-biased. Each of these uses will require a different format.
- Has your research been commissioned? Before you begin your research you must find out exactly what the sponsor expects and needs.
- Who are the participants or stakeholders in your research: ministry officials, villagers, the staff of a school, a parents' association, members of an NGO? What you prepare for each of these may differ, because their needs and conventions for communicating differ.
- What are your obligations, contractually and morally, to each stakeholder?
- What will each expect of you?
- What information does each need?
- What is the best way to get it to them?
- What is the best way to do what you can to see that it is used?

REPORT, TALK, OR WORKSHOP?

First decide whether your presentation will be a report, a talk, or a workshop. Often, the people who will have a role in deciding on what to do with your results may need to study the findings, incorporate them into the work of others, or have something in hand to support a case they are going to make. In such situations, a written report is necessary.

Sometimes, however, people may not have time to read, or the situation may be moving so fast that they just want results and recommendations quickly. If these people commissioned your research, you should know what they expect from the beginning, so that you do not waste everyone's time by settling in to write the study of the century. A well-planned briefing may be the best approach here. Try to allow for about twenty minutes to present your results and about forty for questions. Six to ten simple charts, slides, or transparencies may help to get your points across. Any more leads to something professional presenters call "death by transparency." Give people individual copies of your charts, a short report with an executive summary, or anything else you think will help.

If you have taken a participatory approach, now is not the time to take all the glory yourself. Try to arrange for local people to be invited to present their findings. Not only is this fair, it can also be far more effective. Decisionmakers get an opportunity to meet people whose lives they affect. They can also see that local people are well able to analyze their own situation and make their case.

In other cases, people do not have access to written materials: copies may not reach them or they may not be able to read. This does not disqualify them from knowing about and considering what you found. Once again, a verbal presentation is probably the best. For a local community, try to find a way so that all the kinds of people concerned, regardless of sex, power, age, location, and so on, have a chance to hear and discuss what you found. While you are doing your research, discuss with people how you might develop a reasonable plan for sharing your results and for getting feedback. If you cannot meet all the groups yourself, pre-arranged village meetings chaired by someone who understands the research and can be relied upon to communicate it responsibly may work. The community may also want a written copy to show to agencies, other researchers, and so on.

So writing something is still probably a good idea, even if your main mode of presentation is a talk. The report may be useful to you later or to other researchers, people can use your results to plan other research, or it may save someone else from having to repeat your study.

Of course, you do not have to restrict yourself to a report or a talk. Your findings may be more effectively presented in a video, or even in a literary work, such as a play or a short story. If you are convinced of the value of your work, you might try several ways of getting the message across. Whatever mode you use, remember that the material may have to be translated, sometimes into several languages, to reach all the people concerned.

LENGTH

Ten to twenty pages, including charts, diagrams, and other elements, are about as much as you can expect people to read. Any information that is needed to understand your findings, but which would interrupt the report too much, should go into an appendix. This can include an essential ministry table, an organizational diagram, calculations showing how you arrived at costs, a short explanation of your methods, a copy of your survey form, or anything else the reader needs to know. However, writing 10 pages and attaching 100 pages of appendixes is pointless; people's hearts will quake at the size, and they may never look at the 10 pages.

BALANCING THE EMPHASES IN THE REPORT

All research involves description and analysis, and most research reports also include some interpretation. Description tells what happened (Wolcott's 1990 "telling the story"); analysis tells the relationships and patterns you found; and interpretation tells what you or others think the research means and how to use it.

How much space should you give to each part of your presentation? Each report differs. If little is known about the situation or what is known turns out to be incorrect, your real contribution is description, so that section will take up a greater proportion of your research. Description is also useful to show how all the pieces fit together, that is, to present a holistic picture of a situation. Some long-term agricultural work camps in Kenya are nearly all female. What is life like in these camps for the women and their children; for the boys, who eventually leave; and for the girls, who repeat their mothers' lives? Few people know.

Traditionally, anthropologists often spent much time on description, because they studied people whose way of life was largely unknown to the rest of the world. More recently, educators took up this idea of descriptive ethnography to get a better idea of what really happens in classrooms and of how the school experience fits into other aspects of the learning experience.

If the facts are clear enough, but people do not know how to relate them to one another and make sense of them, your biggest contribution will be analysis, and that will form the major section of your report. Traditionally, "quantitative" research provided a lot of material for analysis and convenient statistical tools for doing it, so "quantitative" researchers gave this part of the report a greater emphasis, but "qualitative" researchers can do this as well by boiling down data into categories, patterns, typologies, and so on as we saw in chapter 16.

If people want to know what you or others who are participating in the research think the analysis means, you will spend more time on interpretation. People who take an interpretive philosophical approach will emphasize this section, and examine the perspectives of all those involved and the meanings they attach to them. Senior researchers, educators, administrators, and others often feel freer to move into the interpretive realm, because even with scanty data they bring a lot of experience and insights to bear in reaching beyond the material at hand to speculate, suggest implications, and challenge theory. People are more inclined to listen to them than to a novice.

Recommendations are a form of interpretation. Most users of development-related research want action-based recommendations. Description and analysis will take you only so far on the road to recommendations. Practical constraints, ideological and political considerations, diplomacy, and common sense also enter into the process of forming recommendations. Analysis may show a finding to be statistically significant but that has nothing to do with it being important. All it shows is that a difference, which is unlikely to be the result of chance, exists between two groups, or before and after an experiment, and if you are studying a large sample, say 2,000, even tiny differences can be statistically significant. You still have to decide whether they really mean anything, and what, if anything, should be done.

This is purely a matter of judgment. You need to know whether a recommendation you are considering falls within the brief of the organizations that are interested in your research. You also need to know whether the community can sustain the recommendation. If it makes great sense and everyone but the senior men favor it, think again. And think again if a similar idea failed, even under completely different circumstances, in a neighboring village; or if the problem is low on the list of community priorities; or if it will cost too much in time or money; or if it will result in undesirable social or technical side effects. All these issues and many more require you to place your facts and analysis in a bigger context and to interpret them in that light.

GETTING A PLAN FOR YOUR REPORT

When you finish your research, you may be overwhelmed. You have all this wonderful information, each bit is like gold, and *all* of it must go into your final presentation. Wolcott (1990, 1994), who specializes in helping educational researchers to present their results concisely, calls this mistake—one that beginning researchers often make—the "heap" approach. He offers two simple instructions for planning the bare bones of your research findings:

- Tell the story.
- Then tell how it happened to be the way you told it.

For action-oriented research we could add another piece of advice:

- Then tell what should be done about it. Of course, if you are working in a participatory project, at this point you will be asking people what *they* think should be done about it.

Your material may help you. Perhaps when you began your research, you had an idea of the kind of report you wanted to write. Now that you have finished, the material clearly falls into place some other way. You are very lucky. Do it that way. But if that does not happen, consider the following ways of organizing, some of which Wolcott (1994) develops in more detail.

Organizing the Findings

Here are some options for organizing your findings:

1. Use your research outline, if you made one. Place the problem or issue in its place and time, then focus on the central points or the core of your research.

2. Organize the report around the participants' perspectives: the key concepts or categories that emerged from an emic approach.
3. Be guided by what you found in the analysis. Take the central charts, diagrams, and statistical findings and use them as the skeleton for the text of your report.
4. Ask people who are concerned with the issues what they need to know. Write the report that way.
5. If you are reviewing or evaluating a project, present
    - The situation or problem
    - The purpose the project was intended to meet
    - An explanation of how the current situation came to be as it is
    - Which (and whose) needs are currently being met and which are not
    - Who is involved
    - What facilities are involved
    - What resources are involved
    - What the consequences of the current situation are
    - What coping strategies are being employed
    - What options are open
    - What constraints have to be taken into account.
6. Present your findings in chronological order. O'Reilly de Brun (1994), in a participatory rural appraisal study in The Gambia, did exactly that. She based each stage of the research on what she had learned in the previous stage. The process would have been obscured in another format.
7. Present the material from various perspectives: different people, different organizations, different levels of administration, different disciplines as reflected by members of the team, different players in the event. Literary authors often do this, and if you are taking an interpretive approach, this way makes sense.
8. Take a central event and show how other things fed into it or related to it in some way.
9. Take a life history and show how it reflects and brings together in one human experience the points you want to make.
10. Use a case study to show how all the factors that interest you come together in a situation.
11. Take a day, a week, or whatever period seems best and chronicle the events.
12. Take the people or the groups concerned and show the interactions and interrelationships among them.
13. Take the outcome and show what led up to it.

Organizing the Analysis

The procedures suggested in chapters 16 and 17 should help you to identify concepts, patterns, and relationships when organizing the analysis. Present the ones you think are important. Relate what you found to other people's studies, to ideas from other disciplines, to what researchers found somewhere else, to a theory if this is useful. If it is not, leave your results to stand on their own, do not dress them up needlessly. Use just enough evidence and supporting material—in the form of tables, graphs, diagrams, case studies, and quotes—to clarify and substantiate your analysis. You are not on trial for your life, mustering every shred of evidence; you are trying to present a modest piece of work that is readable (or "listenable"), creditable, and convincing. If people want more information, they can ask you questions or write to you.

Organizing the Interpretation and Recommendations

Start by organizing your interpretation:

- Tell how you read the findings. What do they mean, what are their implications, why are they important, where do they lead?
- Tell what your study does not show. What else needs to be known?
- Tell what went wrong and how you would do the study again if you had the chance.
- Point out anything interesting that you came across but could not study, for whatever reason. Maybe this will help someone else.

What recommendations arise out of your analysis and interpretations?

- Recall your brief. What are your recommendations supposed to cover? Don't try to reform the world and don't venture into areas about which you know nothing or have no research to back you up, or your other recommendations will be discredited. For example, if you were asked to cost your recommendations, you should have. If you were not and do not know how, don't try now.
- Tell what is really needed. "As the analysis shows, all the new textbooks are gender stereotyped and should be replaced." Then tell what, in your estimation, is practicable. "A phased program, should be put in place to rewrite Social Studies 6 for use in the schools in two years' time."
- Tell what you think the implications of the recommendations will be. What should people expect? "As a result, the role of the untrained teachers may change: their status in the school may be undermined."
- If you are reviewing or evaluating a project, look back at the pertinent points in the section on organizing the findings. What will be the consequences of each option? How can they be implemented?

Try to identify one, two, or three simple and clear tables that reflect the core of your findings and put them at the front. These are what people will remember.

FORMAT

What should your presentation look like? Policymakers, staff of donor agencies, practitioners such as teachers or administrators, project managers, field officers, and local people each have different pictures in their heads of what your work will look like when it is finished.

Reports

To be effective, you may have to prepare more than one report, each tailored to a specific group.

Academic writing, which is discussed later, has some conventional patterns. In the case of other audiences, ask to see examples of reports or papers that are considered clear and well organized. Generally, a report will contain

- A title
- A table of contents
- An executive summary (of the next four parts)
- An explanation of what you studied and why
- A brief account of how you carried out the study
- The findings and analysis
- The recommendations, if you are making any
- Any references (books, articles, reports) you used.

In the case of surveys, under the section describing how you did the study you will be expected to explain your sampling method, the numbers, and the response rate (and what kinds of people did not respond); to describe how you carried out the survey; to evaluate the effects of any sampling and nonsampling errors; and to explain what statistical tests you applied and the levels of significance you used. Do this as simply and briefly as possible, or your readers will skip it. If complications affected the research, say so, but try to put any extended explanation in an appendix.

Academic Papers

Traditionally, academic papers are constructed according to a fairly common pattern—what researchers Judd, Smith, and Kidder (1991) call the hourglass shape of the report, as shown in table 18-1.

Table 18-1. Pattern of the Typical Academic Paper

The report	*Examples*
The report begins broadly:	"Investment in education yields broad economic benefits to a country."
It becomes more specific:	"Investment in educating females has been shown to be probably the single most cost-effective a country can make to improve its standard of living."
And more so:	"Yet many countries have educational systems that are not designed to meet the needs of girls."
And more so:	"Obura has shown that gender bias in textbooks is an important example of this failure to meet girls' needs."
Until you are ready to introduce your own study in conceptual terms:	"Textbooks and teachers' manuals for all primary grades in X Country were examined for gender bias."
The method and result sections are the most specific, the "neck" of the hourglass:	"Three separate coding teams analyzed the texts using a scoring system based on eighteen criteria established by Obura. Table 1 shows that with the exception of mathematics texts, all texts and manuals were seriously biased on all eighteen criteria."
The discussion section begins with the implications of your study:	"These results show that most girls are being exposed to learning materials that have little relevance to their lives."
It becomes broader:	"Clearly, governments must recognize the importance of making the educational process meaningful for both sexes."
And more so:	"Only then can the potential contribution of both males and females to development be realized."

Source: Adapted from Judd, Smith, and Kidder (1991, p. 456).

In other words, the report includes the preliminary materials (the general background of the problem, the specific problem you are studying, what other authors have said) and your own research (your specific research focus, how you studied the problem, your results, your interpretations). The closing materials (a summary, a list of the books and articles you used, and any appendixes) will conclude the report. In some cases, a summary of about 100 to 150 words appears at the beginning and is called an **abstract**. If you look at conference papers and articles in professional journals, you will see that most follow a pattern like this.

This plan is not shown to suggest that you write an academic paper. Indeed, people who are in the habit of writing academically often find that soon they are incapable of communicating with most of the rest of the human race. It is possible, however, that your research is of interest to professional researchers, and currently it is unlikely to be published in a journal unless you follow the rules.

Language

Fortunately, obscure jargon-laded writing is becoming less acceptable, even in academic journals. Try to aim for "parsimonious elegance." This means writing simply, attractively, and to the point. It requires discipline and a ruthless approach to your own writing, particularly if you have a civil service or academic background and have to unlearn an arcane writing style. At the other extreme, unless you take a very good newspaper, try to avoid newspaper writing: sensational, too many judgmental adjectives, language that is too flowery, too many exclamation marks, and so on.

Consider writing in the first person ("I" for an individual, "we" for a team), but use the terms sparingly. Once you choose, do not switch and suddenly start calling yourself "the author." Use the active voice: "Many people thought…" rather than "It was thought by many people…" Do not use jargon unfamiliar to readers, but use correct professional terms when writing for professional readers. Watch for gender-stereotyped language: do not use "he" or "him" when you mean both male and female, say "principals and their spouses" rather than "principals and their wives," say "husband and wife" or "wife and husband" rather than "man and wife." Do not use language that assumes that females are always defined by their relationships to males or are always helpers, such as "the farmer and his wife." The wife may be a farmer too, or *the* farmer.

Tables and Diagrams

Ask yourself: "What am I trying to convey in my tables and diagrams?", and then set them up in the simplest way you can. Do not clutter the report with tables just because you had to prepare them to understand your material. Use only the ones you need to make your points. Keep them simple: if they are too detailed, the picture may be lost. Do not insert the results of statistical tests under the table or chart just because the computer performed them. Many of them may be meaningless, as we saw in chapter 17, and many of them may be meaningless to your readers even if they are legitimate and necessary. Consider how to say what they mean in plain language. For nontechnical readers, instead of saying: "The chi-square (1, $\underline{N} = 58) = 4.50$, $p = 0.05$ showed a statistically significant difference between the two sexes," you can say: "Boys were significantly more likely to say that they intended to go to secondary school," and many people will take your word for it.

As we saw in chapter 5, if you know what your independent variable (the cause) is, you should lay out tables so that the independent variable is on the left axis of the table and the dependent variable across the top, so that percentages show how much of the independent variable is reflected in the dependent variable. If you are testing a hypothesis, an incorrectly laid out table will not give you the information you need.

Even if you are not testing a hypothesis, consider how you want to express your results. If you want to say "of the literate women, 40 percent were younger and 60 percent were older," put younger women and older women on the left axis (table 18-2) and literate and not literate across the top. If you want to say "of the younger women, 57 percent were literate and 43 percent were not," put literate and not literate on the left axis (table 18.3). Look at the tables, which show the results for 150 women. They *do* come out differently, even though the actual results do not change.

Notice that the tables use percentages. You can include the actual number before each percentage, but be sure to give the percentage as well, because it makes the pattern much clearer. Give the actual numbers in the total. Most researchers show the latter in parentheses.

Table 18-2. Women's Age by Literacy

(percent)

Women's age	*Literate*	*Not literate*
Younger women	40	20
Older women	60	80
Total number of women	(60)	(90)

Table 18-3. Women's Literacy by Age

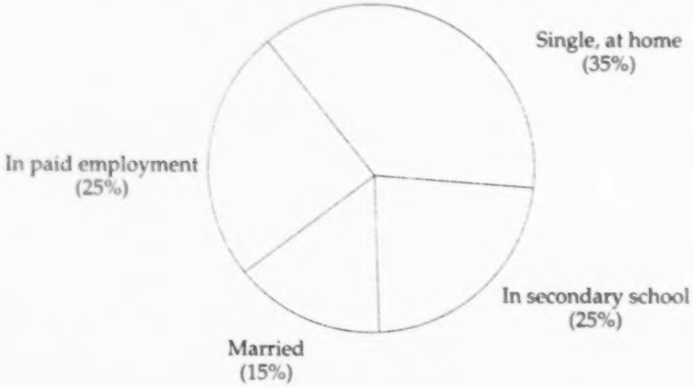
(percent)

Literacy	*Younger*	*Older*
Literate	57	33
Not literate	43	67
Total number of women	(42)	(108)

These tables are two-by-two: two variables on the left axis and two on the top, so that there are four cells or boxes within the table. You can have more extensive tables, four-by-three, for example, giving you twelve cells. If you have too many cells in your tables, people will lose sight of patterns. Consider combining some of the cells if you can.

This book has used various kinds of data displays, and some of them might help your readers to understand your material, just as they helped you. You can, for example, use pie charts to illustrate percentages (figure 18-1).

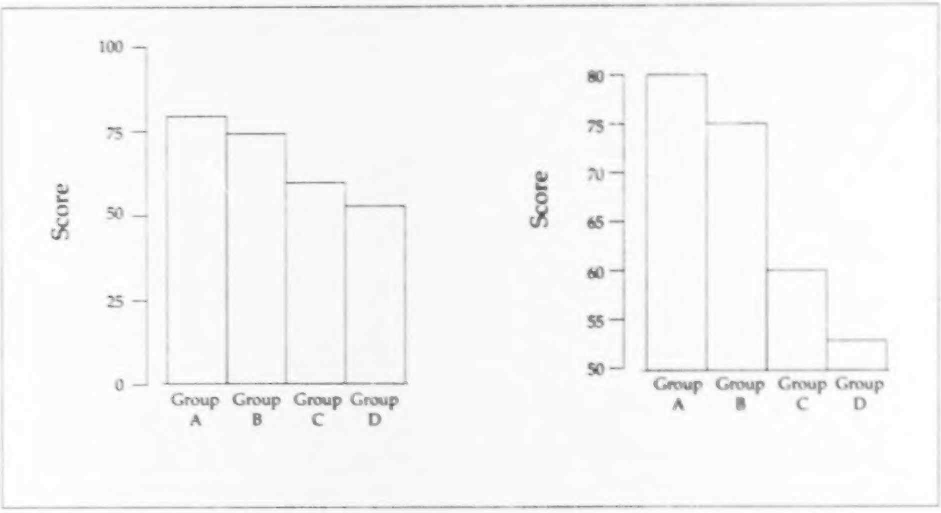
Figure 18-1. Destination of Girls Who Left Primary School at Grade 6



Your percentages should add to 100 percent. The pie chart is 360 degrees. To work out how much of the pie should be given to the 35 percent of girls at home, multiply 360 by 35/100, which gives you 126 degrees. To draw a slice representing 126 degrees, use a protractor (a clear plastic device for measuring angles, usually available in places that sell school supplies).

If you are illustrating two variables, such as the relationship between ethnic group and scores on an examination, you can draw a bar chart (figure 18-2). Try to draw the chart within an invisible square. If you make it taller than wide or wider than tall, the results will be distorted. Make sure that you show the scale you are using along the left side. Drawing only a section of your scale can also be misleading, for example, see how group D's performance seems to deteriorate when you change the scale.

Figure 18-2. Examination Scores by Ethnic Group Using Two Scales



References

If you draw upon someone else's work, such as a book, an article, or a paper, you must recognize the fact by giving the **reference** or **citation**. Throughout the text of this book you have will noticed insertions such as (Hartnett and Heneveld 1994, p. 12). This tells you that the idea or quotation was taken from page twelve of a book or article written by Hartnett and Heneveld and published in 1994. To find the title, look at the reference section at the end of the chapter or the end of the book. In a short report, you will not have chapters, so put the references at the end, which is the usual approach unless chapters are written by different authors.

Large organizations, universities, journals, and publishing houses have style rules about how references should look. The style used in this book is known as Chicago style (see below), and is the style the World Bank uses. Writers of British English follow Rees (1970) or *The Economist Pocket Style Book* (1986). If you are doing the research for an organization, see if there is a preferred style. Whatever system you use, be consistent.You can consult books such as the University of Chicago's *Manual of Style* for correct forms for all the different kinds of problems you might run across: books with five authors, books with no author, manuscripts that have not been published yet, and so on. Even Chicago style has a number of options. Use the one you select consistently.

Here is the form for an article in a journal as used in this book. Notice what punctation is used and where. Notice also that all lines after the first are indented.

> Lockheed, Marlaine E., Bruce Fuller, and Ronald Nyirongo. 1989. "Family Background and Student Achievement." *Sociology of Education* 62 (4):239–56.

This article has three authors. Only the name of the first author is reversed (but some publishers reverse all of them). The work was published in 1989, and in this style the title of the article is in quotation marks. The name of the journal is in italics. This article appeared in volume 62, number 4, of the journal, starting on page 239 and ending on page 256.

Here is the form for a chapter in a book:

> Anzalone, Stephen. 1986. "High Technology, Literacy and Lesotho." In Daniel Wagner, ed., *The Future of Literacy in a Changing World.* New York: Pergamon Press.

Here is the form for a book:

> Mitton, Roger. 1982. *Practical Research in Distance Teaching: A Handbook for Developing Countries.* Cambridge, U.K.: International Extension College.

Another common form you will find is the date in parentheses (1982). Or sometimes the date is placed after the publisher's name: International Extension College, 1982.

Other ways of citing references are possible, such as handling each as a footnote, giving all the details at the bottom of the page on which they appear, but then you still have to write them all out again in the references at the end. The system described in this chapter is probably the simplest.

If you need to, you can put a content footnote at the bottom of a page of text. This is something that you think the reader should know, but which would interrupt the discussion if you put it in right there. For example, you are discussing a class taught by Mrs. Amin.[1] You want people to know that this is not her real name, and that in fact, you have changed all the teachers' names, but not the names of schools. See the way the footnote at the bottom of this page handles this.

CIRCULATING THE STUDY

Once you have a finished draft of your report, ask other people for their comments. You may be so involved that you have taken certain things for granted or have missed something. If you do not know who should be reading or hearing about your work, you probably should not have started the study to begin with. It means you do not know who is involved, what else has been done, who might do something with your results, and so on. And who reads your study will have some bearing on what you say. If it is for internal circulation only, you can say things that you might not say if it were reaching a wider audience or the general public. Even then, you have to be diplomatic if you want people to be receptive to your analysis and recommendations.

If your report is being widely circulated, you have to be even more careful. People do not want themselves, their organization, their policies, or their village to be seen in a bad light. What constitutes a bad light in their eyes and yours may be two entirely different things. People have written books on the consequences of researchers portraying what they thought was a rather neutral account, only to find that the people involved in the study felt outraged and betrayed. That is why all the participants should be involved in every stage of the study. Even that will not please everyone, and in the end, you will have to make decisions, sometimes difficult ones, yourself.

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[1] The names of individual teachers have been changed, but not the names of schools or school districts. (This is an example of a content footnote.)

If an organization or group has commissioned your study, they may control its circulation. Try to work out the circulation group in your initial planning discussions. If the organization has no intention of circulating the study to the people who participated in it, try to negotiate their inclusion.

Circulating drafts will help you to see if the audience you are trying to reach understands it. Ask for comments. You will discover various kinds of "reviewers," for example, the punctuation only reader, who ignores the substance of your report to look at the commas; the destructive reader, who may resent a newcomer to the field, is jealous, is intolerant of approaches other than his own or annoyed that her name or the name of her book does not appear in your study; and the surprise! reader, who says nothing about your draft, but waits to attack the final product. When you encounter any of these, you may be heartened to know that the true greats in many fields tend to be supportive, constructive, and genuinely anxious to help. There are also ordinary people around who will look at your draft in this spirit. Try to learn from comments, and do not give up.

When your study is finished, the widest form of circulation is publishing in a journal or book or presenting a paper at a professional conference. Remember that only a small proportion of papers submitted to journals by trained academics, people whose careers may depend upon publication, are published the first time around. If you still want to try, remember that no matter how good your work, a journal will not publish something that is outside its area or that does not follow its style. Learn what the journal publishes by reading its articles. Read the instructions to authors, usually found somewhere in the issue. If your article is rejected, but returned with comments, see if they can help you to improve it. Resubmit it or try another journal. Remember, however, that all of this can take a very long time. Do not overlook local journals and magazines. The people you are trying to reach may be more likely to read them.

However, you don't need to publish in a professional journal to get a wide circulation. Here is a set of steps that will help you to get your message across. I am indebted to Robert Chambers for this advice.

- Ensure that a large number of copies are made.
- Send copies with a short covering letter giving the main findings to key people and ask for an appointment to come and discuss them.
- Condense the findings and send them to newsletters. There are many newsletters now that have both international and national circulation. They can be an effective way of communicating.
- Spend time on address lists and on finding out who key people are.
- If the report has to go to the top of a hierarchy but you feel it would be useful for people at different levels to receive the report, send enough copies for full distribution within the hierarchy, and if possible copy your letter to people at different levels who may expect to receive copies. Often reports get stuck at the top or near the top. If those lower down know the report exists and where it is, they may be able to ensure that they receive copies.
- Make translations into appropriate languages.
- Consider articles in newspapers, either by yourself or by a journalist who interviews you.
- A broadcast can also be most effective. Television interviews are also worth considering.

USING THE RESULTS

Most readers of this book will be doing a piece of research that they hope will be useful to others. Despite your best efforts, all kinds of things can prevent this from happening. For example, the person who commissioned your research may be transferred to a new job, and her replacement is not interested in what you worked on. Or maybe what you discovered cannot be dealt with at the level to which you have access. Suppose local people have stated that without single-sex schools, they will not send their girls to school. This presents a problem. It would be unusual for this to be solvable at the local level. If the village you worked with is unusual in holding this view, you may find that official programs may not be flexible enough to make an exception for it. If, however, you think that this view on single-sex schools is more widespread, information from your one village will not be enough to convince decisionmakers. You may need to do more extensive survey research or convince others to do the research. Or perhaps you find that your recommendations cross a number of agencies or departments, and it is difficult for them to cooperate.

These and many other circumstances can lead to your study having little or no effect. You cannot foresee all of them, but you can reduce the possibility of all your work being wasted by remembering the following points:

- Your work does not have to be perfect. You can and should admit to mistakes you made and problems you encountered, but it does have to stand up to critical scrutiny. Hit and miss sampling, badly designed experiments, poor questionnaires badly administered, or ignorance of what is already known on the subject will weaken your credibility.
- People have to understand your findings. Write clearly.
- Your recommendations have to relate to something that is achievable. Recommendations that are too broad, expensive, or impractical; that are politically impossible; or that fall outside an organization's or department's brief will be ignored. Also, if you are doing a participatory rural appraisal project that is going to depend entirely on local resources, it should not concentrate on initiatives that require external support or funding.
- Keep all the stakeholders, including any sponsoring organizations, informed throughout the research. People's comments can help to make your recommendations more workable. If your research is not commissioned, try to find out what agencies and groups would be interested in the kind of work you are doing and what kinds of activities they support.
- Try to be aware of whom your research will offend, whom it will support, and who will use it for their own purposes. Local researchers are more likely to be aware of these difficult issues. Research results can be presented in many ways. If you are doing an evaluation of something, be positive and diplomatic in presenting your result; people or organizations invest a lot of themselves, as well as of their money, in their endeavors, and thoughtless negative comments can be hurtful and unproductive. Consider to whom you should send drafts of evaluations. People will not be pleased to find criticisms, no matter how constructive, being widely circulated.
- In the end, it is up to you to show people how they can use your results.To do this, you need to understand who will be involved and how things work. For example, if yours is a village-level study, you need to understand the local authority structure and various features of social organization. Will the chief feel he is being by-passed? Will all the ethnic groups in the area work together? If you are working with an organization, you need to know something of its corporate culture, that is, how it works (both in principle and in practice), who is responsible for what, its internal politics, and so on.

Our Girls

What would you do with your findings after you finished your study of "Reasons for Completing Education at Grade 6 in State Schools among Grade 6 Girls in X District in 1995"?

A short report with an executive summary might go to the ministry of education, to NGOs, and to any international donors involved in the district.

A short report with an executive summary goes to the organization, if any, that commissioned your research. Your negotiations at the beginning of the project will have established who else will be allowed to see it.

If you did the research for your own purposes, you might only want to use the results to make some improvement in the situation. But here are some other audiences you should consider, and some possible forms of presentation.

Possible audience	*Short report*	*A talk*	*Posters*	*A video*
Local teachers, inspectors, community leaders, etc.	✓	✓		
Parents		✓	✓	✓
The girls themselves		✓	✓	✓
The ministry	✓	✓		
NGOs working in the area	✓	✓		
International donors working in the area	✓	✓		

FURTHER READINGS TO HELP YOU

Economist Publications. 1986. *The Economist Pocket Style Book*. London.

Judd, Charles M., Eliot R. Smith, and Louise H. Kidder. 1991. *Research Methods in Social Relations*, 6th ed. Fort Worth, Texas: Holt Rinehart and Winston.

Rees, Herbert. 1970. *Rules of Printed English*. London: Longman and Todd.

University of Chicago Press. 1993. *The Chicago Manual of Style*, 14th ed. Chicago, Illinois.

Wolcott, Harry. 1990. *Writing Qualitative Research*. Newbury Park, California: Sage.

______. 1994. *Transforming Qualitative Data*. Thousand Oaks, California: Sage.

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Epilogue: What Next?

You are now ready to try a piece of research. Start out with something modest that your organization or community needs. Do not aim for the kinds of big projects that you may have seen visiting teams carrying out. Be specific about the purpose of your research, and what exactly you intend to study. Plan it carefully so that you do not involve yourself in a massive survey or an experiment that you cannot control properly. If you can, get advice from other researchers at the early stages. People are more likely to help you when they see that you have prepared yourself and are not wasting their time.

Produce something, no matter what happens. Even if you are thrown out of a village or fired by an organization, write it up. You and others will learn something from it. Unexpected, uncontrollable things happen even to the most seasoned researcher. The only disgrace is unethical behavior: misrepresenting yourself, your purpose, your results; misusing the results; betraying confidences and failing to take precautions to protect those involved in the study; promising things you cannot deliver; wasting people's time and the opportunities they might have had if the study had been done properly.

Good things will happen as well. You will learn that there are many ways of looking at a subject and many valid viewpoints. You will see how much "human" factors matter in development. You will find that good research can lead to improvements in people's lives. You will see that research is exciting.

It is said that people learn 20 percent of what they hear; 40 percent of what they hear and see; 80 percent of what they see, hear, and do; and 100 percent of what they discover for themselves (Theis and Grady 1991, p. 8). Now's the time to try these research methods and aim for the 100 percent. Good luck.

Appendix I

Sample Research Outline

I. Reasons for completing education at grade 6

A. Costs

1. Financial costs
   a. Of fees
   b. Of transport
   c. Of books
   d. Of clothing
   e. Other
2. Opportunity costs (income or labor lost because girl is in school)
   a. Lost income
   b. Lost labor

B. Domestic responsibilities

1. Minding children
2. Housekeeping
3. Producing food for home consumption
4. Working on cash crops
5. Fetching water and/or fuel
6. Other

C. Attitudes toward education: belief in negative consequences

1. Girl will be unmarriageable
2. Girl will learn undesirable ways
3. Secondary education undesirable or irrelevant
4. Primary school education is enough

D. *Attitudes toward the school*
   1. School environment not secure (danger of pregnancy, etc.)
   2. Not enough female teachers

E. *Social and cultural beliefs toward*
   1. The role of girls and women
   2. Girls' and women's abilities
   3. The value of education for females
   4. The desirable characteristics that females should have

F. *Girls' Educational Performance*
   1. Girls' marks too low
   2. Girls do not have required subjects

G. *Access problems*
   1. Not enough places in secondary school
   2. School too far away

H. *Other plans*
   1. Girl going to train/apprentice
   2. Girl going to marry/is married
   3. Girl is pregnant/has child or children

II. State primary schools

A. *Enrollment rates*
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

B. *Repetition rates*
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

C. *Persistence rates*
   1. By sex
   2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
   3. By rural/urban location

D. Achievement

1. By sex
2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
3. By rural/urban location

E. Percentage of students continuing to secondary school

1. By sex
2. By socioeconomic group, religion, ethnic or tribal group, language group, etc.
3. By rural/urban location

F. Social and cultural beliefs toward

1. The role of girls and women
2. Girls' and women's abilities
3. The value of education for females
4. The desirable characteristics that females should have

G. Girls' educational performance

1. Girls' marks too low
2. Girls do not have required subjects

H. Access problems

1. Not enough places in secondary school
2. School too far away

I. Other plans

1. Girl going to train/apprentice
2. Girl going to marry/is married
3. Girl is pregnant/has child or children

III. Grade 6 Girls

A. General characteristics

1. Age
2. Area of residence
    a. District
    b. Rural/urban location
3. Ethnic or tribal group
4. Religion
5. Marital status
6. Occupation(s) of
    a. Mother
    b. Father

- c. Self
  - i. Domestic work
    - a. Hours spent per week
    - b. Activities involved
  - ii. Other employment
    - a. Hours spent per week
    - b. Activities involved

B. School-related characteristics

- 1. School attended
- 2. Number of years in school
- 3. Examinations or other assessment
  - a. Subjects
  - b. Results
- 4. Distance from home
- 5. School costs
  - a. Fees
  - b. Other expenses
    - i. Books
    - ii. Uniforms
    - iii. Supplies
    - iv. Food
    - v. Transport
    - vi. Other (club memberships, etc.)

IV. X District

A. General characteristics

- 1. Location
- 2. Division
  - a. Of larger unit (is it a region, section, etc.)
  - b. Subdivisions within it
- 3. History
- 4. Size
  - a. Area
  - b. Population
    - i. By age
    - ii. By sex
    - iii. By ethnic group, tribal group, religion, languages, etc.
    - iv. Specifically, by school-age populations
      - a. In school
      - b. Not in school
    - v. By literacy
      - a. Male
      - b. Female
    - vi. By economic activities
- 5. Economy

6. Social and cultural characteristics
    a. Roles and responsibilities of women and girls
    b. Beliefs about desirable female characteristics
    c. Preferred age of marriage
    d. Decisionmaking abilities of each sex
    e. Contribution of each sex to the economy
    f. Beliefs about female nature and abilities
    g. Attitudes toward education for girls
    h. Attitudes toward desirable skills and abilities for girls

B. *School-related characteristics*

1. Structuring of school divisions or districts

2. Types of schools
    a. Levels offered
    b. Public/private
    c. Denominational/nondenominational
    d. Single-sex/coeducational
    e. Fee-paying/free
    f. Nature
        i. Academic
        ii. Vocational/technical
        iii. Formal/nonformal
        iv. Conventional/distance

3. Administrative characteristics

4. Policies, especially in relation to enrollment, gender-related issues (pregnancy, subjects offered, etc.)

5. Curriculum

6. Textbooks
    a. Provision
    b. Content, especially in relation to gender

7. Staff
    a. Numbers
    b. Composition by
        i. Sex
        ii. Training
        iii. Qualifications

8. Teaching methods

…… Appendix II ……

Grid Approach for Assessing a Situation or Evaluating a Project

Part of this grid appears in Chapter 4, figure 4-2. This is the complete grid.

	1 Reasons	2 Activity	3 Needs	4 Process	5 Resources	6 People	7 Places
A Reasons	WHY HAS THIS SITUATION COME ABOUT?	Why was this activity chosen?	Why have these needs arisen?	Why were these processes chosen?	Why were these resources chosen?	Why are these people involved?	Why this place or these places?
B Activity	Why these activities?	WHAT ACTIVITIES ARE INVOLVED?	How does the activity meet needs?	How does the activity relate to the processes?	How do the activities relate to the available resources?	What activities do people carry out?	What happens at each place?
C Needs	Why these particular needs?	What needs are these activities meeting?	WHAT ARE THE NEEDS IN THIS SITUATION?	How do needs relate to the processes employed?	How do needs relate to resources?	What needs do the people meet? what are their needs?	What needs are being met at each place?
D Processes	Why are these processes being used?	How are processes related to activities?	What processes are being used to meet needs?	WHAT PROCESSES ARE BEING USED?	What processes are used in getting resources?	What processes do they employ?	What processes are being used in each place?
E Resources	Why are these resources being used?	How are resources related to activities?	What resources are being used to meet needs?	What resources are needed to carry out the processes?	WHAT RESOURCES ARE INVOLVED?	What resources do people control/use?	What resources are available in each place?
F People	Why are these people involved?	Who is involved in the activities?	Who is meeting these needs?	How do the people carry out the processes involved?	Who controls/uses the resources?	WHO ARE THE PEOPLE INVOLVED?	Who is in each place?
G Places (locations, sites, institutions)	Why have these locations been chosen?	Which places are used for which activities?	Where are the needs being met?	How do the places relate to the processes?	Where are the resources being used?	Where are the people involved?	WHAT ARE THE PLACES, SITES, LOCATIONS?
H Consequences	Why have these consequences occurred?	What are the consequences of this activity?	What are the consequences of these needs? Of being met? Of not being met?	What are the consequences of these processes?	What are the consequences of using these resources?	What are the consequences of these people being involved?	What are the consequences of using these locations?
I Time/ Change	If the situation has changed, or will change, why?	Have these activities changed over time? Do you anticipate change?	Have these needs changed? Do you anticipate change?	Have the processes changed over time? Do you anticipate change?	Have these resources changed over time? Do you anticipate change?	Have the personnel/ beneficiaries changed over time? Do you anticipate change?	Have the locations changed over time? Do you anticipate change?
J Identification of Options	Why have these options been identified/ selected?	What options are there in relation to these activities?	What options are there for meeting these needs?	What options are there for other processes?	What options are there for other resources? For different use of resources?	What options are open to the people involved? What personnel/ beneficiary options are there? What do they think of your options?	What options are there in relation to location?
K Assessment of Options	Why has this assessment been made?	What is your assessment of these activities?	What is your assessment of these options for meeting needs?	What is your assessment of these options for using other processes?	What is your assessment of these options for using other resources or using resources differently?	What is your assessment of the options in relation to personnel/ beneficiaries? What is their assessment?	What is your assessment of the options in relation to location?
L Recommendation	Why these recommendations?	What do you recommend in relation to these activities?	What do you recommend to meet these needs?	What do you recommend in relation to these options?	What do you recommend in relation to these resources?	What do you recommend in relation to these options?	What do you recommend in relation to these options?
M Prediction	Why this prediction?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?

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	8 Consequences	9 Time/Change	10 Identification of Options	11 Assessment of Options	12 Recommendation	13 Prediction
A Reasons	Why have these consequences come about?	Why has the situation changed? Why will it change?	Why have you identified these particular options?	Why have you made this assessment?	Why do you make this recommendation?	Why do you predict this outcome?
B Activity	What is the impact on activities?	Have the activities changed? Will they change?	What are the options in relation to activities?	How does each of the options relate to desired activities. How will these options affect activities? What activities will they require?	What recommendation do you make in relation to these activities?	What will happen if the current activity, or the activity as it is projected, continues? What will happen as a result of your recommendation?
C Needs	What is the impact on needs?	Have the needs changed? Will they change?	What are the options in relation to needs?	How does each of the options relate to identified needs? How will these options affect needs? What needs will they meet?	What recommendation do you make to meet these needs?	What will happen if current needs continue to be met as they are, or as it is projected they will be met? What will happen as a result of your recommendation?
D Processes	What is the impact on processes?	Have the processes changed? Will they change?	What are the options in relation to processes?	How does each of the options relate to desired processes? How will these options effect current processes? What processes will they require?	What recommendation do you make in relation to processes?	What will happen if the processes in current use are continued?
E Resources	What is the impact on resources?	Have the resources changed? Will they change?	What are the options in relation to resources?	How do each of these options relate to resources? How will these options affect resources? What resources will they require?	What recommendation do you make in relation to resources?	What will happen if resources continue as they are, or as they are projected to be? What will happen as a result of your recommendation?
F People	What is the impact on personnel/ beneficiaries?	Have the personnel/ beneficiaries changed? Will they change?	What are the options in relation to personnel/ beneficiaries?	How will these options affect personnel/ beneficiaries? What personnel will they require?	What recommendation do you make in relation to personnel/ beneficiaries?	What will happen if the personnel/ beneficiaries remain as they are or are projected to be? What will happen as a result of your recommendation?
G Places (locations, sites, institutions)	What is the impact on locations?	Have the locations changed? Will they change?	What are the options in relation to locations?	How will these options affect locations? What locations will they require?	What recommendations do you make in relation to locations?	What will happen if locations remain as they are, or as they are projected to be? What will happen as a result of your recommendation?
H Consequences	WHAT ARE THE CONSEQUENCES OF THE CURRENT SITUATION?	Have the consequences changed? Will they change?	What are the options, having considered the consequences identified so far?	How will these options affect the consequences of the current situation? What are the consequences of these options?	What recommendations do you make, taking all identified consequences into account?	What will happen if the current consequences, or projected consequences, continue? What will happen as a result of your recommendation?
I Time/ Change	How have the impacts changed? How will they change?	HAS THE SITUATION CHANGED OVER TIME?	What are the options, in view of past and projected changes?	What changes will these consequences bring about? What changes will they require?	What recommendation do you make, taking into account past and anticipated changes	What will happen is change, or projected changes, occur? What will happen as a result of your recommendation?
J Identification of Options	What are the consequences of the options which have been identified?	Have the options changed? Will they change?	WHAT ARE THE POSSIBLE OPTIONS?	What is your assessment of each option?	What recommendation do you make in relation to each identified option?	What will happen if the proposed options are not implemented? What will happen as a result of your recommendation?
K Assessment of Options	What are the consequences of your assessment?	What is your assessment of the impact of change?	How will you identify the options?	WHAT IS YOUR ASSESSMENT OF EACH OPTION?	What recommendation do you make about how to assess options in future?	What will happen if assessment s are not made in the future? What will happen as a result of your recommendation?
L Recommendation	What do you recommend, knowing these consequences?	What do you recommend as a result of this assessment?	How do you recommend the options be assessed?	What recommendation do you make in relation to each option?	WHAT ARE YOUR RECOMMENDATIONS?	How do you recommend that assessment of options be made in future? What will happen as a result of your recommendation?
M Prediction	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	What do you predict will happen if this recommendation is met/not met?	WHAT DO YOU PREDICT WILL HAPPEN IF THESE RECOMMENDATIONS ARE MET/ NOT MET?

…… Appendix III ……

Some Measures, Scales, and Indices Used to Study Girls' Education

			Where used to date (1989)	
	Measures, Scales, Indices	Type[1]	Africa	Other developing countries
1.	*Child's Characteristics*			
A.	Social Competence Scale	I		
B.	Primary School Records Schedule	I	X	
C.	Secondary School Student Survey	I	X	
D.	Class, Gender, and Life Chances: Nigerian University Case Study	Q	X	
E.	Home Behavior Inventory, Classroom Behavior Inventory	INV, S		X
2.	*Parent Behavior and Attitudes*			
A.	Communication Strategy Administration and Coding Manual	I	X	
B.	The Family Belief Interview Schedule (FBIS)	I		
C.	Fosterage and Proximate Determinants of Fertility	I	X	
D.	Household Survey: Nutritional Status and Absent Mothers	Q	X	
E.	Concepts of Development	Q, S		

From Hyde (1989).

F.	Implicit Parental Learning Theory (IPLET I-V)	I		X
G.	Home Observation for Measurement of the Environment	INV, S		
H.	Morocco Literacy Project	I, Reading test	X	
I.	Adults' Conceptions of Children's Cognitive Abilities (ages 1–4)	T, I, S		
J.	Construction of the Child Interview	I, S	X	
K.	Kohn's Rank Order of Parental Values (Schaefer and Edgerton Revision)	I, S		
L.	The Elementary School Years Study	I, Q, S		
M.	The Parenting Dimensions Directory	I, S		
N.	Cross-Cultural Mathematics Study	Q, I, S		X
O.	Parental Modernity Scale	I, S		
3.	*School, Teacher, and Classroom Characteristics*			
A.	Classroom ABCs: Effect, Behavior, and Conditions in Botswana Classrooms	OG	X	
B.	Malawi School Quality Study: Classroom Observation Tool	I, OG	X	
C.	Second IEA Mathematics Study: Teacher Questionnaire	Q	X	
D.	Classroom Environment Study (Thailand)	O, S		X
E.	IEA Classroom Environment Study	Q, S		
F.	Classroom Observation Guides	OG		
4.	*Community and Societal Characteristics*			
A.	1978 and 1983 Bicol Multipurpose Survey	I		X
B.	International Survey of Marriage and Fertility in the Life Cycle	I		X
C.	The Malaysian Family Life Survey	I		X
D.	Ghana Living Standards Survey	I	X	
E.	Survey on Work Patterns	Q		X

1

I	Interview	Q	Questionnaires
INV	Inventory	S	Schedule
T	Test	OG	Observation Guide

Addresses (by number and letter of measure)

1A Martin Kohn, The William Alanson White Institute, 20 West 47th Street, New York, New York 10023

1B, 1C, 2C, 2D Caroline Bledsoe, Dept. of Anthropology, College of Arts and Sciences, Northwestern University, Evanston, Illinois 60208

1D Karen Biraimah, College of Education, University of Central Florida, P.O. Box 25000, Orlando, Florida 32816-0992

1E Earl S. Schaefer, Department of Maternal and Child Health, School of Public Health, University of North Carolina-Chapel Hill, Chapel Hill, North Carolina 27599-7400

2A, 2J Ann V. McGillicuddy-Delisi, Department of Psychology, Lafayette College, Easton, Pennsylvania

	18042
2B	Robert H. Wozniak, Department of Human Development. Bryn Mawr College, Bryn Mawr, Pennsylvania 19010
2E	Leslie A. Feil, Institute for the Study of Departmental Disabilities, University of Illinois at Chicago, 1640 W. Roosevelt Road, Chicago, Illinois 60608
2F	Children's Center, 100 Walnut Place, Syracuse, New York 13210
2G	The Dorsey Press, 224 South Michigan, Suite 440, Chicago, Illinois 60604
2H	Daniel A. Wagner, Literacy Research Center, Graduate School of Education, University of Pennsylvania, Pennsylvania 19104-6216
2I	Scott Miller, Department of Psychology, University of Florida, Gainesville, Florida 32611
2K, 2O	Earl S. Schaefer, Department of Maternal and Child Health, School of Public Health, Achievement Research Laboratory, Institute of Social Research. University of Michigan
2M	Thomas Power, Department of Psychology, University of Houston, Houston, Texas 77204-5341
2N	James Stigler, Department of Behavioral Science, University of Chicago, 5730 S. Woodlawn Avenue, Chicago Illinois 60637
3A, 3B	Bruce Fuller, Graduate School of Education, Harvard University, Cambridge, Massachusettts
3C	University of Illinois, Second International Mathematics Study, 505 E. Armory, Room 341, Champaign, Illinois 61820
3D	Lorin Anderson, College of Education, University of South Carolina, Columbia, South Carolina 29208
3E	Angela Hilyard, Assistant Director, Field Services and Research, The Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario M5S 1V6, Canada
3F	Stallings Teaching and Learning Institute, University of Houston, Houston, Texas
4A	Research Division of the Bicol River Basin Development Program and U.S Agency for Iinternational Development Office of Regional and Agricultural Development
4B	East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848
4C	Rand Corporation, 1700 Main Street, P.O. Box 2138, Santa Monica, California 90406-2138
4D	World Bank, 1818 H Street, N.W., Washington, D.C. 20433
4E	Mary C. Brinton, Department of Sociology, University of Chicago, Chicago, Illinois

Bibliography

Ahmed, Iqba, Arne Bigsten, Jorge A. Munoz, and Prem Vashishtha. 1992. *Poverty in The Gambia.* Geneva: International Labour Organisation.

Anker, Richard. 1981. *Research on Women's Roles and Demographic Change: Survey Questionnaires for Households, Women, Men and Communities with Background Explanations.* Geneva: International Labour Office.

Bales, R.F. 1952. "Some Uniformities of Behavior in Small Social Systems." In G. Swanson and others, eds., *Readings in Social Psychology,* 2nd ed. New York: Henry Holt.

______. 1970. *Personality and Interpersonal Behavior.* New York: Holt, Rinehart and Winston.

Bales, R.F., and S.P. Cohen. 1979. *SYMLOG: A System for the Multiple Level Observation of Groups.* New York: Free Press.

Barker, David. 1978. "Appropriate Methodology: An Example Using a Traditional African Board Game to Measure Farmers' Attitudes and Environmental Images." Workshop Paper No. 26. Brighton, U.K.: Institute of Development Studies.

Bellew, Rosemary, and Elizabeth M. King. 1993. "Educating Women: Lessons from Experience." In Elizabeth M. King and M. Anne Hill, eds., *Women's Education in Developing Countries.* Washington, D.C.: World Bank.

Benavot, A. 1989. "Education, Gender and Economic Development: A Cross-National Study." *Sociology of Education* 62 (June): 14–32.

Berlin, B., P. Kay, and W. Merrifield. 1985. "Color Term Evolution." Presented at the annual meeting of the American Anthropological Association.

Bernard, H. Russell. 1989. *Research Methods in Cultural Anthropology.* Newbury Park, California: Sage.

Boyer, E.G., A. Simon, and G.R. Karafin. 1973. *Measures of Maturation: An Anthology of Early Child Observational Instruments.* Philadelphia: Research for Better Schools.

Brim, John A., and David H. Spain. 1974. *Research Design in Anthropology: Paradigms and Pragmatics in the Testing of Hypotheses.* New York: Holt, Rinehart and Winston.

Brock, C., and N.K. Cammish. 1991. *Factors Affecting Female Participation in Six Developing Countries.* Hull, U.K.: University of Hull.

Burgess, Robert G. 1983. *Experiencing Comprehensive Education: A Study of Bishop McGregor School.* London: Metheun.

Campbell D.T., and J.C. Stanley. 1966. *Experimental and Quasi-Experimental Designs for Research.* Chicago: Rand McNally.

Caracelli, Valerie J., and Jennifer C. Greene. 1993. "Data Analysis Strategies for Mixed-Method Evaluation Designs." *Educational Evaluation and Policy Analysis* 15(2):195–207.

Cernea, Michael M., ed. 1991. *Putting People First: Socialogical Variables in Rural Development,* 2nd ed. New York: Oxford University Press.

Chambers, Robert. 1981. "Rapid Rural Appraisal: Rationale and Repertoire." *Public Administration and Development* 1:95–106.

______. 1983. *Rural Development: Putting the Last First.* London: Longmans.

______. 1991. "Shortcut and Participatory Methods for Gaining Social Information for Projects." In Michael M. Cernea, ed., *Putting People First: Socialogical Variables in Rural Development,* 2nd ed. New York: Oxford University Press.

Cohen, Bernard P. 1989. *Developing Sociological Knowledge: Theory and Method,* 2nd ed. Chicago: Nelson-Hall.

Dawson, J.L.M. 1967. "Traditional versus Western Attitudes in West Africa: The Construction, Validation and Application of a Measuring Device." *The British Journal of Social and Clinical Psychology* 6(2):81–96.

Devereux, Stephen. 1989. "'Observers Are Worried': Learning the Language and Counting the People in Northeast Ghana." In Stephen Devereux and John Hoddinott, eds., *Fieldwork in Developing Countries.* Boulder, Colorado: Lynne Rienner Publishers.

Economic Commission for Africa and United Nations Development Programme. 1993. *A Strategy for the Implementation of the Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s.*

FAO (Food and Agriculture Organization of the United Nations). 1985. *The Fifth World Food Survey.* Rome.

Flanders, N.A. 1970. *Analyzing Teaching Behavior.* Reading, Massachusetts: Addison-Wesley.

Fluitman, Fred, and Xavier Oudin. 1991. *Skill Acquisition and Work in Micro-Enterprises: Evidence from Lomé, Togo.* Discussion Paper No. 31. Geneva: International Labour Organisation.

Foster, George. 1965. "Peasant Society and the Image of the Limited Good." *American Anthropologist* 67:293–315.

Fowler, Floyd J., Jr. 1988. *Survey Research Methods.* Newbury Park, California: Sage.

Frankfort-Nachmias, Chava, and David Nachmias. 1992. *Research Methods in the Social Sciences,* 4th ed. London: Edward Arnold.

Gardner, Howard. 1983. *Frames of Mind: Theories of Multiple Intelligences.* New York: Basic Books.

Geertz, Clifford. 1973. *The Interpretation of Cultures: Selected Essays.* New York: Basic Books.

______. 1983. *Local Knowledge: Further Essays in Interpretive Anthropology.* New York: Basic Books.

Glaser, B.G., and A.L. Strauss. 1976. *The Discovery of Grounded Theory: Strategies for Qualitative Research.* Chicago: Aldine.

Goodenough, Ward H. 1956. "Componential Analysis and the Study of Meaning." *Language* 32:195–216.

Greaney, Vincent. 1994. "World Illiteracy." In Fran Lehr and Jean Osborn, eds., *Reading, Language and Literacy: Instruction for the Twenty-First Century.* Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Guba, Egon G., ed. 1990. *The Paradigm Dialog.* Newbury Park, California: Sage.

Guba, Egon G., and Yvonna S. Lincoln. 1989. *Fourth Generation Evaluation.* Newbury Park, California: Sage.

Hall, Budd, Arthur Gillette, and Rajesh Tandon, eds. 1982. *Creating Knowledge: A Monopoly?: Participatory Research in Development.* New Delhi: Society for Participatory Research in Asia (45 Sainik Farm, Khanpur).

Hallam, Rebecca. 1994. *Crimes without Punishment: Sexual Harassment and Violence Against Female Students in Schools and Universities in Africa.* Discussion Paper 4. London: Africa Rights.

BEST COPY AVAILABLE

Harding, Sandra. 1987. *Feminism and Methodology*. Milton Keynes, U.K.: Open University Press.

Harrison, Michael I. 1987. *Diagnosing Organizations: Methods, Models and Processes*, 2nd ed. Newbury Park, California: Sage.

Hartnett, Teresa, and Ward Heneveld. 1993. *Statistical Indicators of Female Participation in Sub-Saharan Africa.* Technical Note No. 7. Washington, D.C.: World Bank, Africa Technical Department, Human Resources Division.

Headland, Thomas N., Kenneth L. Pike, and Marvin Harris, eds. 1990. *Emics and Etics: The Insider/Outsider Debate.* Newbury Park, California: Sage.

Heneveld, Ward. 1994. *Planning and Monitoring the Quality of Primary Education in Sub-Saharan Africa.* Technical Note No. 14. Washington, D.C.: World Bank, Africa Technical Department, Human Resources Division.

Honadle, George. 1979. *Rapid Reconnaissance Approaches to Organizational Analysis for Development Administration.* Washington, D.C.: Development Alternatives, Inc.

Hyde, Karin. 1989. *Improving Girls' School Attendance and Achievement in Developing Countries: A Guide to Research Tools.* Washington, D.C.: U.S. Agency for International Development.

Judd, Charles M., Eliot R. Smith, and Louise H. Kidder. 1991. *Research Methods in Social Relations*, 6th ed. Fort Worth, Texas: Holt, Rinehart and Winston.

Kane, Eileen, and Mary O'Reilly de Brun. 1993. "Bitter Seeds: Girls' Participation in Primary Education in The Gambia." Washington, D.C.: World Bank, Africa-Sahalian Department, Population and Human Resources Division. Draft.

King, Elizabeth M. 1990. *Educating Girls and Women: Investing in Development.* Washington, D.C.: World Bank.

Kottak, Conrad Phillip. 1991. "When People Don't Come First. Some Sociological Lessons from Completed Projects." In Michael M. Cernea, ed., *Putting People First.* New York: Oxford University Press.

Krejcie, R.V., and D.W. Morgan. 1970. "Determining Sample Size for Research Activities." *Educational and Psychological Measurement* 30(3):607–10.

Lee, Alfred McClung. 1973. *Toward Humanist Sociology*. Englewood Cliffs, New Jersey: Prentice-Hall.

Leedy, Paul D. 1985. *Practical Research: Planning and Design*, 2nd ed. New York: Prentice-Hall.

_____. 1989. *Practical Research: Planning and Design*, 4th ed. London: Collier Macmillan.

Little, Kenneth. 1973. *African Women in Towns: An Aspect of Africa's Social Revolution.* Cambridge, U.K.: Cambridge University Press.

Longhurst, Richard. 1981. "Research Methodology and Rural Economy in Northern Nigeria." *IDS Bulletin* 12(4):23–31.

Longwe, Sarah Hlupekile. 1986. "Formulating Strategies for Promoting the Equality of Women." Discussion paper presented at the twenty-seventh Congress for the International Alliance of Women, Mauritius.

May, Tim. 1993. *Social Research: Issues, Methods and Process.* Buckingham, U.K.: Open University Press.

Merriam, Sharon. 1988. *Case Study Research in Education: A Qualitative Approach.* San Francisco, California: Jossey-Bass.

Miles, Mathew B., and A. Michael Huberman. 1984. "Drawing Valid Meaning from Qualitative Data: Toward a Shared Craft." *Educational Researcher* (May):20-30.

______. 1994. *Qualitative Data Analysis*, 2nd ed. Thousand Oaks, California: Sage.

Mitton, Roger. 1982. *Practical Research in Distance Teaching*. London: International Extension College.

Murdock, G.P., and C. Provost. 1973 "Factors in the Division of Labor by Sex." *Ethnology* 12(2):203–25.

Namuddu, Katherine. 1992. "Constraints to the Achievement of African Women." Paper prepared for the Conference on Women's Human Capital and Development, sponsored by The Rockefeller Foundation, Bellagio, Italy. May 18-22.

Norton, Andrew, and J.T. Milimo. 1993. "Zambia Participatory Poverty Assessment Synthesis Report." Washington, D.C.: World Bank. Draft.

O'Reilly de Brun, Mary. 1994. "Tender Shoots: A Case Study of Community Mobilization and Response to Problems of Girls' Education in Gambia." World Bank, AF5PH: Washington, D.C. Draft.

Osgood, C.E., C.J. Suci, and P.H. Tannenbaum. 1957. *The Measurement of Meaning*. Urbana, Illinois: University of Illinois Press.

Palmer, Ingrid. 1981."Women's Issues and Project Appraisal in Rapid Rural Appraisal." *IDS Bulletin* 12(4):32–39.

Park, Robert E. 1928. "The Bases of Race Prejudice." *The Annals* 140:11–20.

Pelto, P., and G. Pelto. 1978. *Anthropological Research: The Structure of Inquiry*. Cambridge, U.K.: Cambridge University Press.

Pike, Kenneth. 1967. *Language in Relation to a Unified Theory of the Structure of Human Behavior*, 2nd ed. The Hague, Netherlands: Mouton.

Psacharopoulos, G. 1989. "Time Trends of Returns to Girls' Education: Cross-National Evidence." *Economics of Education Review* 8(3): 229–31.

Randall, L. 1975. "Lies, Damn Lies and the Argentine GDP." *Latin American Research Review* 11(1):137–59.

Rhoades, Robert E. 1987. *Basic Field Techniques for Rapid Rural Appraisal. Proceedings of the 1985 Conference on Rapid Rural Appraisal.* Khon Kaen, Thailand: Khon Kaen University.

Roberts, Royston M. 1989. *Serendipity: Accidental Discoveries in Science*. New York: John Wiley and Sons.

Salmen, Lawrence F. 1987. *Listen to the People: Participant Observer Evaluation of Development Projects*. New York: Oxford University Press.

Schensul, Stephen. 1969. "Marginal Rural Peoples: Behavior and Cognitive Models among Northern Minnesotans and Western Ugandans." Ph.D. dissertation, University of Minnesota.

Schultz, T. Paul. 1989. "Benefits of Educating Women." Background Paper Series. Washington, D.C.: World Bank, Population and Human Resources Department, Education and Employment Division.

Sechrest, Lee. 1992. "Roots: Back to Our First Generations." *Evaluation Practice* 13(1):1–7.

Serpell, Robert. 1993. *The Significance of Schooling: Life Journeys in an African Society*. Cambridge, U.K.: Cambridge University Press.

Shuman, H. 1966. "The Randon Probe: A Technique for Evaluating the Quality of Closed Questions." *American Sociological Review* 31:218–22.

Sigurdsson, Sverrir, and Eluned Schweitzer. 1994. "The Use of Sectoral and Project Performance Indicators in Bank-Financed Education Operations: A First Edition Note." Washington, D.C.: World Bank, Education and Social Policy Department.

Sjoberg, Gideon, and Roger Nett. 1968. *A Methodology for the Social Researcher*. New York: Harper and Row.

Slim, Hugo, and John Mitchell. 1992. "The Application of RAP and PRA Techniques in Emergency Relief Programs." In N.S. Scrimshaw and G.R. Gleason, eds., *Qualitative Methodologies for Planning and Evaluation of Health-Related Programs*. Boston, Massachusetts: International Foundation for Developing Countries.

Soetoro, Ann. 1979. *Prosperity Indicators for Java*. Washington, D.C.: Development Alternatives, Inc.

Spradley, James P. 1979. *The Ethnographic Interview*. New York: Holt, Rinehart and Winston.

Strauss. A., and J. Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques.* Newbury Park, California: Sage.

Theis, Joachim, and Heather M. Grady. 1991. *Particpatory Rapid Appraisal for Community Development.* London: International Institute for Environment and Development.

Trimble, J.E., W.J. Lonner, and J. Bouche. 1983. "Stalking the Wily Emic: Alternatives to Cross-Cultural Measurement." In S. Irvine and J.W. Berry, eds., *Human Assessment and Cultural Factors.* New York: Plenum.

UNICEF (United Nations Children's Fund). 1989. *The State of the World's Children 1989.* Oxford, U.K.: Oxford University Press.

______. 1990. *The State of the World's Children.* Oxford, U.K.: Oxford University Press.

______. 1991. *The State of the World's Children.* Oxford, U.K.: Oxford University Press.

______. 1994. *The State of the World's Children 1994.* Oxford, U.K.: Oxford University Press.

Valadez, Joseph, and Michael Bamberger, eds. 1994. *Monitoring and Evaluating Social Programs in Developing Countries.* Economic Development Institute Studies. Washington, D.C.: World Bank.

Watson, L., and M. Watson-Francke. 1985. *Interpreting Life Histories: An Anthropological Inquiry.* New Brunswick, New Jersey: Rutgers University Press.

Webb, E.J., D.T. Campbell, R.D. Schwartz, and L. Sechrest. 1966. *Unobtrusive Measures: Nonreactive Research in the Social Sciences.* Chicago: Rand McNally.

White, Benjamin. 1984. "Measuring Time Allocation, Decision-Making and Agrarian Changes Affecting Rural Women: Examples from Recent Research in Indonesia." *IDS Bulletin* 15(1):1–5

White, Christine Pelzer. 1984."Rural Women: Issues for Research, Policy and Organization for Gender Equality." *IDS Bulletin* 15(1):1–5.

White, Martin King. 1980. *The Status of Women in Pre-Industrial Societies.* Princeton, New Jersey: Princeton University Press.

Whiting, Beatrice, and Carolyn P. Edwards. 1973. "A Cross-Cultural Analysis of Sex Differences in the Behavior of Children Aged Three through Eleven." *Journal of Social Psychology* 91(2):171-88.

World Bank. 1990. *Poverty: World Development Report 1990.* Washington, D.C.: Oxford University Press.

______. 1992. *World Development Report 1992.* Washington, D.C.: Oxford University Press.

Yin, Robert K. 1989. *Case Study Research: Design and Methods.* Newbury Park, California: Sage.

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